

SHOULDER STABILITY AND SHOULDER CONTROL

Development

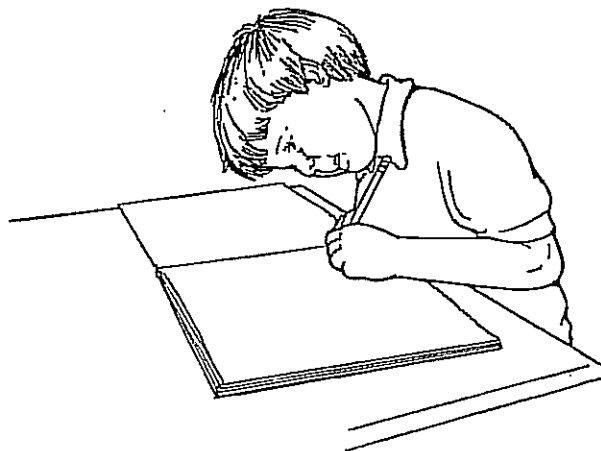
Early in life, children develop the ability to contract (pull together) the muscles on either side of the shoulder joint. This cocontraction enables them to hold the shoulder joint steady so the arm can be held in different positions while the forearm and hand accomplish different activities. The muscles on either side of the shoulder joint also control smooth movement of the arm by relaxing gradually on one side while contracting on the other side, in a perfect balance that allows the arm to move at the desired speed, force, and degree of movement. In the first two years of life, infants and toddlers engage in many movement activities that require them to apply pressure into the shoulder joint, such as rocking back and forth and side to side on hands and knees, leaning on extended arms and hands while standing at a small table, cruising along furniture, pushing large objects, and scribbling with crayons. They also experience a great deal of activity involving pull at the shoulder, such as pulling to stand, pulling objects, standing in crib holding onto the rail, and pushing and pulling to move their bodies. All of these experiences provide internal (kinesthetic and tactile) and external (visual) information about cocontraction and movement of the muscles that control the shoulder. As children grow older, the control of movement at the shoulder increases in smoothness and accuracy as memory of previous movement, body awareness, and ability to make spatial judgments improves.

Shoulder Instability and Poorly Controlled Movement

Difficulty in this area can be the result of abnormal muscle tone, neuromuscular disorders causing weakness of the shoulder or trunk muscles, the sensory-integrative difficulties associated with learning disabilities, developmental delay, experiential variation, or normal individual differences in development. Children's rates of motor development vary widely; some children are just slow to develop shoulder control due to their unique—yet entirely normal—rate of development or differences in childhood motor-learning experiences.

Regardless of the reason, these children are unable to hold their arms steady at the shoulder against pushing and pulling pressures (especially when the direction changes rapidly) or to control their arms in space with smooth, accurate, graded movement. They have trouble with activities that necessitate large movements of the arms when unsupported in space (for example, when writing or drawing using large motions on the chalkboard, and moving the arm across the page during drawing and writing tasks). Often they hold their arms stabilized against the desk or their trunks more than most children when using

their hands and fingers, and sometimes they move their paper during writing and drawing rather than moving the arm out away from the body. Lines drawn on the chalkboard are shaky and poorly controlled.



Beneficial Activities

It is important for these children to receive extra assistance and to practice a large number of activities that improve shoulder stability and control. Activities that apply pressure to the shoulder joint or require stabilization of the shoulder (such as pushing a wheelbarrow, playing freeze tag, and doing wheelbarrow walks) are beneficial. This type of activity gives the child extra sensory input and stimulates cocontraction of the muscles of the shoulder. It is useful immediately before activities that require controlled shoulder movement. Activities that require free (unsupported) movement of the arms in space (such as chalkboard or easel work or ball throwing and catching) will improve shoulder control.

If the child has abnormal muscle tone, use activities based on the recommendation of an occupational or physical therapist. Carry them out only after demonstration and guidance.

Compensatory Strategies

Children with weak shoulder stability or control benefit from adaptations that stabilize the arm in the desired position, increase resistance to arm movement to cut down on uncontrolled movement, and stabilize objects during manipulation. Examples of these kinds of modifications include adjusting the work surface to the proper height to stabilize the arms during fine motor activity; using weighted pens and heavy toys or manipulatives; taping down the paper for drawing or writing; and using nonslip material on the desk top during manipulative activities.

Child's Name _____

Date _____

ARM STRENGTH
Classroom and Individual Practice
SITTING PUSHUPS



Purpose

To increase strength in the large muscles of the arms and hands

Materials

Classroom chair or floor

Procedure

Floor pushups. Child sits cross-legged on the floor; places arms at sides, palms resting on the floor; and straightens arms to slowly lift body weight off floor. Child relaxes arms and returns slowly to normal sitting position.

Chair pushups. Child sits on a chair, feet resting on the floor; grasps sides of the chair seat near the front; shifts weight forward so that straight arms are supporting some body weight; and slowly bends elbows so that body weight is lowered. Then child slowly straightens arms to bring body back up to a forward sitting position, and slowly shifts weight backward until weight is again resting on buttocks.



Desired Response

Child supports body weight for increasing periods of time or for more repetitions.

Undesired Response

Child shifts weight too far forward so balance is lost (especially when doing chair pushups).

Variations and Adaptations

Floor pushups are more appropriate than chair pushups for children with poor balance or hyperactivity.

Sitting pushups can be done by children in wheelchairs.

Sitting pushups can be fun for all children in the classroom and can be carried out during breaks between desk or floor activities.

Encourage children to increase the amount of time they can hold themselves up, or the number of times they push themselves up on successive days of performing this activity. Have them chart their improvement over a period of weeks or months.

Straight-leg sitting may be easier for children with decreased balance or flexibility.

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

Modify expectations and requirements for writing performance.

1. Expect and reward steady progress, but don't judge the child's writing by the standards used for the class.
2. Introduce the word processor in elementary school, and gradually allow its use in written assignments if writing skills don't improve with age and practice. However, exclusive use of the word processor is not recommended, especially in the elementary grades, because writing skills will not improve without practice.
3. Be flexible about the appearance of written work. Require legibility, not attractiveness.
4. Allow increased time for written assignments or tests.
5. Modify length of written assignments. For example, require only one well-written paragraph instead of the four paragraphs expected of the rest of the class.
6. Test orally if child's written performance does not demonstrate knowledge accurately.
7. Use multiple choice or one-word answer formats for assignments and tests. For example, require child to write a spelling word instead of a sentence including the spelling word.

Comment

These suggestions may improve a child's success with handwriting in the classroom, but they should not be used exclusively unless it has been determined that the child's kinesthetic skills will not improve to a functional level with practice. It is equally important to present activities to improve child's handwriting skills.

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

Child's Name _____

Date _____

CENTRAL NERVOUS SYSTEM STATE
Classroom and Individual Practice

**RELAXING THE ARM AND HAND—
WEIGHT BEARING AND SHAKING**

Purpose

To encourage relaxation of arm and hand muscles before and during fine motor activities

Materials

Any materials needed for a fine motor activity that usually results in increased tension in the arm or hand

Preparation

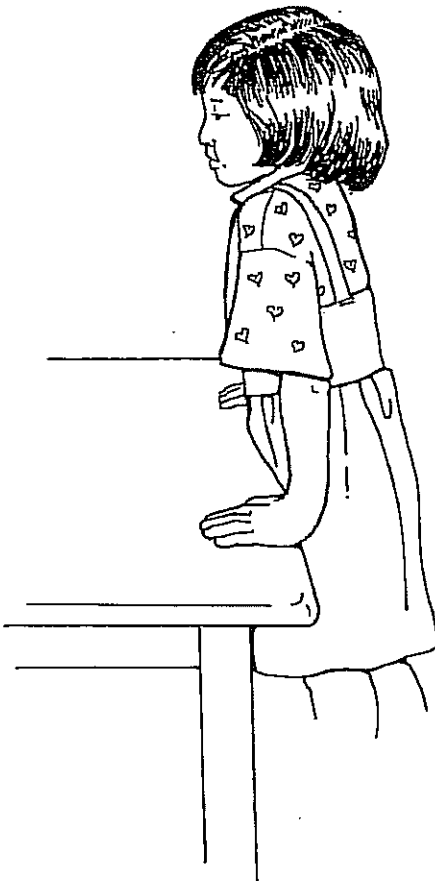
Turn lights to low level of intensity. Speak in slow, regular, gentle tone of voice.

Position

Child stands comfortably in front of desk or table.

Procedure

1. Child stands with palms on table or desk top and leans forward so that body weight rests on straight arms, with wrists perpendicular (at a 90-degree angle) to the hands.
2. Child sways slowly, several times from side to side, so that body weight is shifted from one hand to the other.
3. Child stands up and lets arms hang loose at sides. Focus child's attention on "the heavy feeling and weight of the arms."
4. Child vigorously shakes the "tension out of" the arm and hand as they hang limp at the child's side until "a warm, tingly feeling" occurs when the shaking stops.
5. When the arms and hands look and feel relaxed, child maintains the relaxed feeling while drawing large shapes, letters, or lines on the chalkboard or large paper, using smooth, fluid movement.
6. Child proceeds to the fine motor activity that usually results in increased tension. Child repeats Steps 1-4 whenever tension is recognized.



Desired Response

Child's body weight is distributed equally through the palmar surface of the hands and fingers as child bears and shifts body weight on desk top (Steps 1 and 2). Child recognizes tension or increased tone in arm or hand muscles and relaxes them during the fine motor activities (Steps 5 and 6).

Undesired Response

Child bears and shifts weight onto hands which are not perpendicular to the wrists, so that weight is supported primarily by the "heel" of the hand or the fingers.

Variations and Adaptations

If tone in the hands is high, if the child is unable to open hands fully, or if stretching hands open results in increased tone, provide a contoured surface for the hands to hold onto when bearing weight on hands (Steps 1 and 2). The child can grasp a roll, raised grab bar, or rolled towel.

Provide cues, such as "Does your arm (shoulder, hand) feel tense or relaxed right now?" Continue to give cues until the child consistently recognizes tension when it occurs.

Reinforce this technique in the classroom by teaching a physical cue to serve as a reminder when you notice increased tension in the child's arm or hand. For example, during a classroom writing activity, gently touch any tense area to alert the child to the need to relax.

Record the amount of time during which a relaxed arm is maintained while doing a fine motor activity, to monitor and point out progress to the child.

Encourage child to relax arms in this manner before beginning classroom or home fine motor activities, and to take breaks to relax arms if they develop tension during the activity.

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

Child's Name _____

Date _____

SHOULDER STABILITY
Classroom and Individual Practice
WEIGHT-BEARING ACTIVITIES

Purpose

To improve shoulder stability

Materials

Desk, wall, or other stable surface

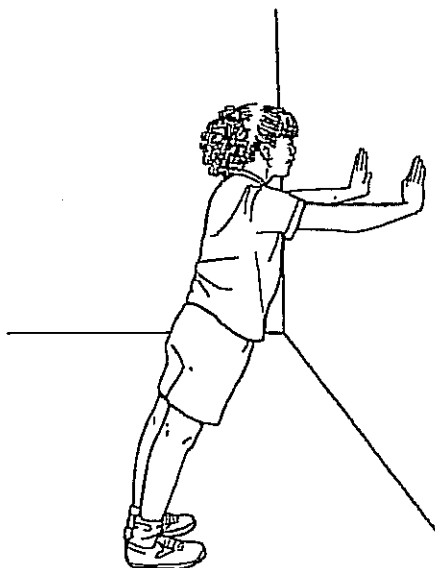
Preparation

If stiffness or low tone is a problem, carry out activities to normalize tone before working on shoulder stability.

Procedure

Work on shoulder stability briefly. Follow with activities that develop shoulder control.

1. Child places body at a 45-degree angle to the wall, with shoulders directly in front of elbows and wrists, and elbows straight. If tone in the arms is high, this exercise is done with hands rotated slightly so that fingers point toward the sides (external rotation).
2. Child holds this position for 15 to 30 seconds.
3. Child immediately moves on to an activity that requires shoulder control, such as swinging on a swing, twirling a jump rope, playing ball, writing on chalkboard.



Desired Response

Child stabilizes shoulders so they support the body in correct alignment against gravity.

Undesired Responses

Shoulders are lifted up toward the base of child's skull, or shoulders are pulled back so that the upper back is not straight but curves in between the shoulder blades. Child bears weight primarily on one side.

Variations and Adaptations

Child leans down over a desk or table and rests weight on palms of hands. Again, shoulders are aligned directly above the hands and elbows.

Child shifts weight from one arm to the other.

Any activities carried out on hands and knees will encourage muscles on both sides of the joints to contract for stability (cocontraction).

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

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Classroom and Individual Practice
SITTING PUSHUPS



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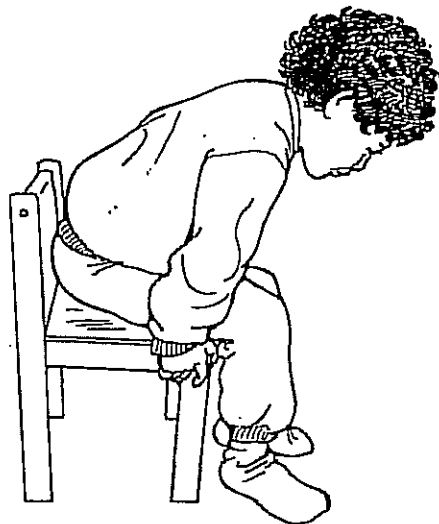
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