

# Postural Control

# POSTURAL CONTROL

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## Definition

Postural control refers to the ability to maintain and change the position of the trunk and neck. When postural control is well developed, a child is able to sit at a desk in an upright posture with hands free for manipulative activities, stand steadily while drawing on the chalkboard, or walk while carrying a lunch tray. The trunk is used as a stable base for positioning and movement of the extremities, and the head is maintained in the optimal position for eye contact with others and for looking at the classroom environment.

## Development

Newborns have little muscular control of the neck or trunk. They maintain primarily flexed (bent) positioning of the arms and legs (physiological flexion). During the first few months of life, infants “straighten out” as gravity and the development of extensor muscles counteract the initial bent positioning. They engage in many hours of activities that develop trunk extensors (lying on stomach, straightening arms and legs and pulling head and trunk up to “fly like a bird”) and flexors (lying on back pulling feet up to the mouth). They develop the ability to hold the head upright by balancing extensor and flexor muscle activity around three to four months, and by six months they can lift or flex the neck against gravity in all positions.

Spinal extensor control also increases in the six-month-old so that a baby can sit with a straight back and use the arms for manipulation or for protective responses (catching self if the body falls forward, backward, or to one side). By the eighth month babies can rotate (turn the body at the trunk) and shift weight to either side without falling, and can counterbalance these movements by using the arms to stop falls (protective extension reactions) or by automatically shifting weight the other way (equilibrium reactions).

Nine-month-old babies have well-developed trunk control and can use the sitting position as a stable base for practicing fine motor and cognitive skills. By eleven months children move continuously from one sitting pattern to another, and from sitting to hands and knees, to kneeling, to pulling to stand, while equilibrium reactions prevent the shifts from interfering with balance.

By twelve months children have full postural control in sitting and are able to stand, shift weight to lift one leg, and may attempt to walk without assistance.

## Difficulty with Postural Control

Children who have poor postural control may sit in a variety of revealing positions.



Some children with low muscle tone or weak trunk or neck muscles sit with a rounded back and/or tilted pelvis, rest head on hand (interfering with use of the hand for stabilizing paper), or rest the upper trunk and both arms on desk top. Children who are having difficulty with maintaining a stable trunk position due to poor balancing of the muscles (cocontraction) or inability to inhibit unnecessary trunk movement may move constantly in the chair. Children with poor balance might use one or both arms (resting on floor or holding onto chair) to maintain the body in an upright position, which interferes with use of the arms for manipulative activities. Children who have difficulty with trunk rotation or with refined movement of the head and trunk often move the head and trunk as a unit with little rotation at the neck or waist.

Poor postural control can be due to a number of causes, including abnormal muscle tone, weakness, poor ability to cocontract muscles, sensory-integrative disorders often associated with learning disabilities, delayed or slow development, or physical inactivity.

Slowly developing or motorically awkward children often have more difficulty inhibiting muscle activity and maintaining stable trunk postures than normally developing children. Postural control becomes more difficult for these children when arm movement is required, and even more difficult when weight is added to the arms. Normally developing children show decreased muscle activity in the trunk with age, as the muscles used for maintaining posture become refined and highly efficient. Slowly developing children, on the other hand, often do not show this increase in postural control, but continue to use excessive levels of muscular activity for maintaining trunk stability (Fisher 1983).

## Beneficial Activities

Activities for improving postural control are those that focus on head control, trunk flexion and extension, protective responses, cocontracting muscles to maintain postures against push- and pull-resistance, trunk rotation, shifting weight to either side, balance and equilibrium reactions, and maintaining trunk stability while using the arms for activity.

The choice of activities depends upon the difficulties the child is experiencing in the classroom and the cause of the difficulty. For example, a child with low tone who is unable to use both hands for scissor cutting because one hand is used for supporting the head might benefit from activities to increase tone and cocontraction of neck muscles, followed by behavioral encouragement for keeping the head upright for increasing periods of time. A child who slumps in the chair because of low tone and poor physical conditioning due to inactivity would benefit from activities to increase tone and others to encourage physical activities that involve trunk extension and flexion. A child who is unable to maintain an upright sitting position without using one arm for support would benefit from balance and equilibrium activities.

## Compensatory Strategies

To minimize the effects of poor postural control, focus on providing ways for the child to stabilize the trunk and neck (if needed) externally. When the trunk cannot be adequately stabilized, arm control is decreased; so stabilization of arms during fine motor tasks also might be helpful.

## Reference

Fisher, J. M. 1983. *A developmental study of static postural control and superimposed arm movements in normal and slowly developing children.* Educational Research Information Center (ERIC) document #ED247219.

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**  
**NECK COCONTRACTION**

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**Purpose**

To improve the child's ability to maintain the head in an upright position

**Preparation**

Normalize muscle tone in trunk and neck, if necessary, before working on these activities.

**Position**

Child sits in chair or adult's lap, with trunk well supported in a symmetrical position and head upright. If child is unable to maintain the head upright against added resistance, support the back of child's head against your chest; or use one hand to support the back of child's neck. Align child's head, spine, and pelvis so that pressure into the top of the head goes straight down through the spine and pelvis. Child looks straight ahead.



**Procedure**

1. Adult applies slight downward pressure to the top of child's head for 10 to 15 seconds. Pressure is applied so that it travels straight down through child's neck, spine, and pelvis.
2. Child holds head upright without support for 15 seconds.
3. Adult applies pressure again for 10 to 15 seconds.
4. Child works on activity with head in upright position without external support for as long as possible.

**Desired Response**

Child maintains head in upright position independently for increasing lengths of time.

**Undesired Response**

Child raises shoulders to support head in upright position.

**Variations and Adaptations**

Child clasps hands and applies downward pressure to own head before activities.

Child sits with beanbag, sandbag, or other soft weighted bag on head for a few minutes before or during an activity that requires an upright head position (such as desk work).

If child is unable to maintain head upright without assistance, follow this activity with head control activities.

If child is unable to maintain head upright for 10 to 15 seconds after pressure is applied by adult, modify the activity to make it simpler. Instead of applying pressure and then requiring child to hold the head position, leave your hand on child's head and apply light pressure for a few seconds, release, then reapply pressure immediately. Repeat this until child holds the posture independently. Remove your hand to allow child to hold up the head independently for as long as possible.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**  
**HEAD CONTROL**

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**Purpose**

To improve the child's ability to maintain the head in an upright position

**Preparation**

Normalize muscle tone in trunk and neck before working on these activities, if needed. If cocontraction (balancing the muscles on either side of the neck) is a problem, support the trunk well and stimulate cocontraction of the neck muscles for a few minutes before beginning.

**Position**

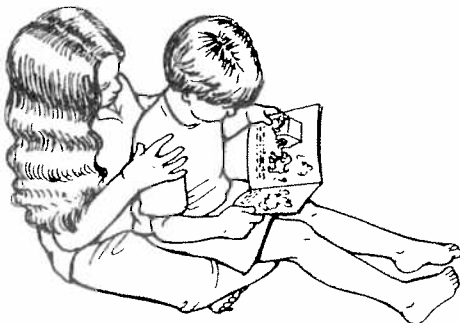
Do this activity on a chair or while sitting on the floor. Child sits on adult's lap, facing the same direction as adult. Child's trunk and head are well supported in a symmetrical position against adult's chest. Adult leans back so child's trunk reclines slightly (10 to 20 degrees).

**Procedure**

1. Child sits on adult's lap, with trunk and head supported during classroom or home activity (circle time, reading activity, or while watching television).
2. Adult sits up straighter so that more head control is required from child. Adult holds trunk upright by placing hands under child's armpits or by holding child's shoulders, if necessary. If child raises shoulders to assist in holding head up, adult holds child's shoulders down while supporting trunk.
3. Child holds head upright as long as possible. When child's head starts to fall forward, backward, or to either side, adult moves child's trunk slightly in that direction to assist with balancing the head over the trunk.
4. When child is unable to maintain head upright, adult leans back slightly so that child is in a slightly reclined position with trunk and neck supported against adult's chest.
5. After a short rest period, adult leans forward and child again maintains head upright for as long as possible.
6. Steps 2-5 are repeated.

**Desired Response**

Child maintains head upright independently for increasing periods of time.



### **Undesired Response**

Child raises shoulders to assist with holding head up.

### **Variations and Adaptations**

Practice of head control works well in a group setting, in which child is focusing on the group interaction or the activity rather than on the act of holding up the head.

During individual activities, focus child's attention on the cognitive activity (such as the book you are reading) while moving your body slightly to require as much head control as possible.

When child is able to maintain the head upright with trunk upright, tilt child's trunk slightly in each direction and encourage child to correct the head position to upright. As control improves, tilt farther in each direction.

Children with weak head control need to assume a variety of positions during the day, so that head control can be practiced regularly.

Mercury switches can provide feedback about head position. These are attached to the child's head and result in an electrical connection when the head is upright and no connection when it is not. For example, this switch can cause a tape player to play music when the head is upright and to stop when it is not.

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



Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**  
**NECK ROTATION**

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**Purpose**

To improve the child's ability to rotate (turn) at the neck

**Preparation**

If necessary, normalize muscle tone in trunk and neck before working on this activity.

**Activities**

Any activity that encourages turning at the neck is helpful.

1. Child lies on stomach, propped on elbows; adult or another child plays with toys placed to child's sides. For example, cars are driven in a half-circle from one side of child to the other, so child must turn the neck each way to keep the cars in sight.
2. Child lies on back on the floor and looks at toys placed to either side.
3. Adult sits with child (or child sits on adult's lap) during classroom or individual activities. Adult supports child's shoulders so that the trunk cannot move with the head when child looks to either side. Set up games and activities that require child to move the head to see to either side. Games such as "I see something you don't see" (which involves visually searching the room and trying to guess what the selected object is) and flashlight activities are excellent motivators for head turning.
4. Have child do head circles (making circles with head movement) and shake the head from side to side without trunk movement. Incorporate these motions into classroom musical or movement activities.



**Desired Response**

Child turns head to either side without moving the trunk.

**Undesired Responses**

Child moves at the waist instead of the neck, or pivots on the seat so that the trunk and head turn as one unit.

### **Variations and Adaptations**

If child doesn't turn neck, use both hands to gently encourage movement to each side.

Practice of neck rotation works well in a group setting, in which child is focusing on the group interaction or the activity rather than the act of turning the head.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**  
**TRUNK COCONTRACTION**

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**Purpose**

To improve ability to balance trunk muscles so that a stable upright posture can be maintained

**Preparation**

If tone is abnormal, spend a few minutes working on normalizing tone before beginning this activity.

**Position**

Child stands or sits upright without external support (no leaning against wall, back of chair, or desk). Child's arms hang down straight at the sides.

**Procedure**

Any activity that requires maintaining a stable trunk against push- or pull-resistance is helpful.

1. Adult and child stand facing each other; adult places hands on child's shoulders. Adult asks child to "make body stiff" or to "freeze like a statue" and demonstrates by maintaining own trunk position while child pushes against adult's trunk in any direction.
2. Adult pushes against child's trunk, first in one direction, then another, with rapid changes in direction. This is repeated to both sides, forward, and backward.
3. Steps 1-2 are repeated in the sitting position.
4. Follow this activity with desk or chalkboard activity. Monitor upright trunk position.

**Desired Response**

Child maintains body in stable upright position without moving when pushed in any direction.

**Undesired Responses**

Child's body moves with force of adult's push. Child stabilizes body by leaning against wall, back of chair, against desk, or by holding onto own legs or to chair seat.



### **Variations and Adaptations**

Do this activity briefly before any individual desk work. Record the length of time spent upright without support (or record the number of times reminders are needed). This information can be graphed so child can see progress clearly through the upward graph line that corresponds to length of time upright without support, or the downward line that corresponds to decreased number of reminders needed.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

POSTURAL CONTROL  
Classroom and Individual Practice

## TRUNK STABILITY DURING ARM MOVEMENT

### Purpose

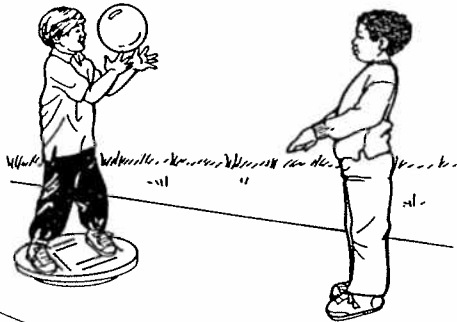
To improve ability to maintain stable upright posture when arms are used for activity

### Preparation

If tone is abnormal, spend a few minutes working on normalizing tone before beginning this activity. Child should be able to shift weight to each side and to balance well enough to sit in chair without holding on for support.

### Materials

Tiltboard, balance board, or other piece of equipment that requires constant shifting of body weight for balancing



### Procedure

1. Child sits cross-legged or stands on tiltboard.
2. Child throws light ball to adult or another child.
3. Adult throws ball back; child catches.
4. Steps 1-3 are repeated until child can throw and catch ball easily without losing balance.
5. Child then throws and catches ball in desk chair.
6. Follow this activity with desk or chalkboard fine motor activity. Monitor stable upright trunk position.

### Desired Response

Child maintains balance by moving slightly in the direction opposite any tilt of the board. Body moves less and less on the tiltboard as skill improves. Eventually, child uses arms without upsetting balance. In the desk chair, child catches, throws, and performs fine motor activity with little or no trunk movement.

### Undesired Responses

Child uses hands to hold onto the tiltboard or to maintain balance against wall or floor. Child's trunk sways from side to side or bends at the waist to correct for tilt.

### **Variations and Adaptations**

This is usually easier in a sitting position. Child should progress to standing only when sitting balance is good during throwing and catching.

Child may start with hands on floor (in sitting) or holding adult's hand (in standing) for initial support, and then let go when control is adequate.

Child stands on the tiltboard and draws or writes on the chalkboard. Follow this with standing on the floor and working at the chalkboard.

Use a T-stool (a one-legged stool) similarly.

Monitor progress by recording the number of throws and catches child accomplishes before losing balance or falling off the board.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**  
**TRUNK ROTATION**

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**Purpose**

To improve the child's ability to rotate (twist) at the waist

**Materials**

Objects for lifting—preferably large, light objects that encourage use of both hands (large blocks, balls, boxes)



**Preparation**

If necessary, normalize muscle tone in trunk and neck before working on this activity.

Child should be able to shift weight to each side without losing balance before working on this activity.

**Position**

Child sits on the floor in long-sitting or cross-legged position. Adult sits behind child.



**Procedure**

1. Child uses both hands to grasp and pick up objects placed on one side.
2. Child places the objects on the other side.
3. Repeat until all objects have been transferred. Then repeat in the opposite direction.
4. Adult stands behind child and encourages child to turn to look and talk with adult and to look at objects located behind the child.

**Desired Response**

Child twists at the waist to reach to either side and to look behind while maintaining leg and pelvic position without movement.

**Undesired Response**

Child moves the pelvis or pivots on the floor so that the trunk moves as a unit.

**Variations and Adaptations**

If child doesn't twist at waist, hold one side of pelvis in place with one hand and gently encourage movement of the shoulder in the desired direction with the other hand. Move the shoulder on the side opposite the direction toward which child is turning.





This activity can be done in standing position. Child keeps feet on line and squats to pick up objects placed on floor on either side, using both hands.

This activity works well with child sitting in sand at the beach. Child digs sand from one side and transfers it to the other side, using both hands. If pelvis moves when child reaches from side to side, give pelvic support to encourage trunk rotation. Decrease and discontinue support as abilities improve.

Child transfers foam packing ("peanuts") from a bucket on one side to one on the other; or transfers water with a sponge.

Do this activity while seated in a chair, with child keeping heels against a taped line while turning to pick up objects placed on either side.

Encourage trunk rotation any time child drops something on the floor to the side of the chair.

Position activities next to the child to require trunk rotation.

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



Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**  
**PROTECTIVE EXTENSION**

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**Purpose**

To improve child's ability to prevent a fall by extending one or both arms to catch body weight when balance is lost

**Preparation**

If necessary, normalize muscle tone in trunk and neck before working on this activity.

**Position**

Child sits on the floor in a variety of sitting positions, including long-sitting, cross-legged, and side-sitting positions.

**Procedure**

1. Push child gently to each side, and help child to bear weight on straight arm in each position for a few minutes.
2. Push child forward gently and help child support body upright with both arms straight in front.
3. Sing songs and encourage child to sway from side to side and from back to front, with straight arms and hands touching down in each direction (one to each side, and both to front and back).
4. Place child in upright sitting position and push gently to each side and to front and back, while holding child at shoulder to prevent a fall if protective responses don't occur. If child doesn't place straight arms down to break the fall, assist with straightening arms. Encourage a few more minutes of weight bearing before repeating.



**Desired Response**

When pushed off balance, child extends one arm (when pushed to the side) or both (when pushed forward or backwards) and supports body weight with arms to protect from falling.

**Undesired Response**

Child falls forward, backward, or to either side. (Don't let this happen. Always provide enough support so child feels secure.)

### **Variations and Adaptations**

Carry out Procedure 4 during circle time or other group or individual activity so that child can focus on the group interaction or activity rather than on protective extension.

Push child to each side more quickly as skill improves.

Do this activity on a tiltboard, waterbed, or other moving surface.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**  
**LATERAL WEIGHT SHIFT**

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**Purpose**

To improve ability to shift weight from one side to the other without losing balance

**Preparation**

If necessary, normalize muscle tone in trunk and neck before working on this activity.

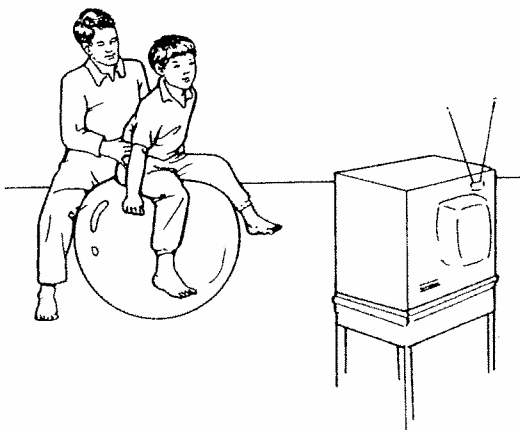
**Activities**

Any activity that involves shifting body weight from one leg to the other, or from one side of the pelvis to the other, is helpful.



1. Weight shifting on adult's lap. Child sits on adult's lap, facing the same direction. Adult sits in long-sitting position on floor or on chair, and provides support by holding child's upper chest with one hand on each side. Adult lifts one knee, then the other, so child is required to shift weight from one side to the other to avoid losing balance. Adult continues to alternate knees, lifting slightly to require constant shifting, and increases speed as child's ability to shift increases. Adult provides encouragement for shifting weight by gently pulling upward or lifting the chest on the side of the higher knee.

2. Reaching to floor from chair. Place objects on the floor on one side. Child reaches with the arm on that side to retrieve the object, while shifting weight onto the buttock on the same side. Child then places the object on the other side, which requires shifting the weight to the opposite buttock. Devise activities that encourage lots of shifting (for example, a timed activity that involves picking up balls from a bucket on one side and placing them in a bucket on the other side, trying to beat child's own previous time record or that of another child).



3. Physioball or bolster activities. Child sits on a large ball; adult holds child at pelvis, with one hand on each side. Adult rocks child gently to each side, requiring weight shifting. Child sits on a bolster (in a straddle position); adult sits behind and gently rocks the bolster to each side while supporting child at the chest or pelvis, if needed.
4. Shifting weight to music. Child stands or sits, and rocks from side to side to music, shifting weight from one leg or one buttock to the other. Adult encourages weight shift by lifting gently upward under the arm, or pushing down gently on the shoulder or hip.

### **Variations and Adaptations**

Vary degree of tilt, speed, and rhythm of shifting as child's skill improves.

Weight-shifting activities that involve sitting on an adult's lap, physioball, or bolster, can be incorporated into circle time or any group or individual sitting activity (group discussion, watching television), so child can focus on the activity or group interaction rather than on shifting weight.

Practice shifting weight in a variety of sitting positions.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**  
**SITTING BALANCE**

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**Purpose**

To improve child's ability to balance trunk in upright sitting position

**Activities**

Many activities commonly presented at home, in class, and on the playground help to develop balancing skills. Any activity that places the body off-balance when in a sitting position and requires the child to correct the position is helpful.

1. Riding on adult's shoulders. Hold child at hips, and rock back and forth and side to side.
2. "Horse" rides. Adult assumes all-fours (horse) position; child straddles adult's back. Do this over a mat; another adult may be needed to "spot." Variation: Adult sits, child straddles adult's legs while adult bounces legs around and back and forth.
3. Bolster, physioball, carpeted barrel, or roll. Child sits on ball or straddles bolster, barrel, or roll; adult provides support at child's trunk, under the arms. Adult rocks child in all directions and encourages balancing reactions. As skill improves, adult supports child at hips, finally at legs.
4. Straddling a small stool without a back. Child tries to maintain upright sitting position on a stool that is easily tipped over.
5. Swings. Child practices balance on a variety of swings, including platform swings (trying to sit without arm support as swing moves) and swings with and without backs.
6. Arm use in above positions. Child is encouraged to engage in activities that involve reaching and weight shifting while in the positions described above. For example, child reaches across midline to obtain a toy from the ground while sitting on a bolster or over an adult's knees.
7. Waterbed. Push child gently in all directions. Encourage child to balance without using hands for support.

**Variations and Adaptations**

Children with poor balance may find this kind of activity frightening. Teach the activities in an individualized, noncompetitive manner. Provide external support (an adult's hand, a grab bar, or the wall) for as long as necessary.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Classroom and Individual Practice**

## **TRUNK SUPPORT FOR FINE MOTOR ACTIVITIES IN SITTING**

### **Purpose**

To improve child's ability to sit with a straight back during fine motor activity

### **Preparation**

Encourage upright sitting position before and during the activity by using one of the following techniques:

- Quickly stroke from top to bottom down the center of child's back.
- Apply slight pressure with your hands on the top of child's head when child's body is aligned well (neck and back straight above pelvis). Gently press straight down so that pressure goes through neck, spine, and pelvis.
- If shoulders are rounded forward, tap them back gently from the front.
- Tap or rub the lower back gently over the spine.
- Use your fingers to vibrate lightly over the back of child's neck and back muscles, over the spine.
- Bounce child gently in a sitting position (on your lap, a mini-trampoline, physioball).

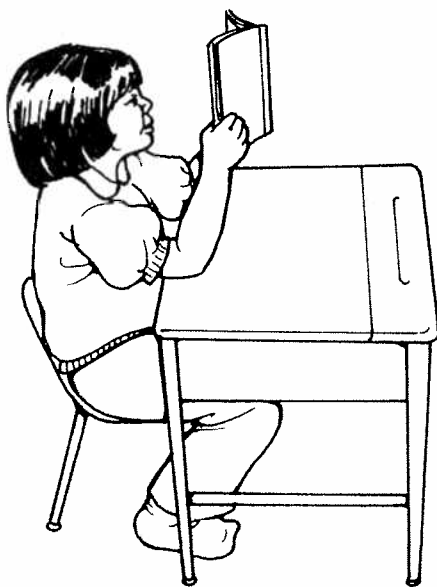
### **Position**

Child sits in a variety of sitting positions including long-sitting, cross-legged, and sitting in a chair. In chair, pelvis is at the back of the seat, hips and knees are bent about 90 degrees, and feet are supported firmly on floor or stool.

### **Activities**

Any activity that requires use of both hands in a sitting position will encourage active trunk support because the hands will be in use and can't be used to support the trunk. Activities that are positioned at or above eye level will encourage upright sitting position.

1. Desk-top easel activities. Writing, drawing, and painting using a desk-top easel, so activity is at eye level, encourages upright head and trunk positioning.
2. Using both hands to hold a book for reading. If back is rounded or neck bent forward, encourage child to rest elbows on the desk and hold book at eye level.



3. Sitting to work at eye level or above. Child sits in a chair and uses one or both hands to draw, paint, or write on chalkboard, large mural, or easel. Child works with arms at or above eye level.
4. Using both hands while sitting for hitting, throwing, and catching. Child hits balloons or throws and catches balls in sitting position, with both hands used for the activity.
5. Physical and visual cues. Place a mirror on the wall so child can see and correct sitting position during desk activities. Tape a small picture of upright sitting posture to the desk. Work out a simple physical reminder (such as a slight stroke down the back or tap on the shoulder when posture is poor).

#### **Desired Response**

Child sits with straight back while using arms for activity, for increasing lengths of time.

#### **Undesired Responses**

Child sits with rounded back or uses arms for supporting trunk in upright position. Child leans against back of chair; pelvis shifts forward on seat.

#### **Variations and Adaptations**

Monitor progress by spot-checking and recording position (straight or rounded back) throughout the day. Give praise and encouragement.

A slanted desk top is often helpful for encouraging a more upright position.

Use of book holders encourages upright position during reading.

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

Child's Name \_\_\_\_\_

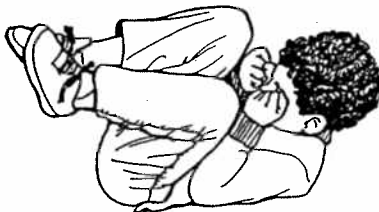
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**POSTURAL CONTROL**  
**Gym, Playground, and Extracurricular Practice**  
**TRUNK FLEXION**

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*Advanced barrel activity*



*Flexor ball positioning*



*Physioball activity*

**Purpose**

To improve child's use of the muscles that result in trunk flexion

**Preparation**

If tone is abnormal, spend a few minutes working on normalizing tone before beginning this activity.

**Activities**

Any activity that requires bending forward at the trunk or "curling into a ball" is helpful. Incorporate these into classroom movement or gym activities.

1. Barrel activities. Child climbs inside a large barrel; sits in a flexed position with back against the inside curve of the barrel. Child rocks the barrel from this position, making it roll over if enough momentum is produced. Children take turns rolling the barrel and sitting inside it while it is rolled.

For a more demanding flexion activity, child crawls head first into barrel and maintains bent arms and legs during rolling.

2. Net swing. Child lies on back in flexed position while swinging or spinning in the net.
3. Flexor ball positioning. Child lies on back and pulls legs, arms, and head forward to "curl up into a little ball." Encourage child to curl up without holding legs with hands or arms. As skill improves, children can pretend to be balls or "jellybean bugs" and can rock from side to side or back and forth or roll around the room in this position.
4. Exercises that involve abdominal muscles, such as sit-ups or bicycles (child lies on back and cycles legs in the air), improve flexor strength.
5. Physioball. Child lies on back on large ball; adult provides support at the hips or knees. Child pulls trunk and head forward to see or touch adult's face.



**Desired Response**

Child pulls body forward into flexed position and maintains this position for increasing periods of time.

**Variations and Adaptations**

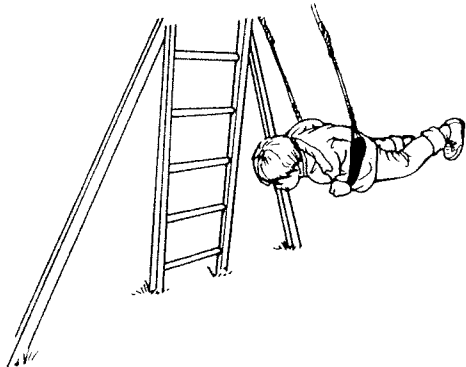
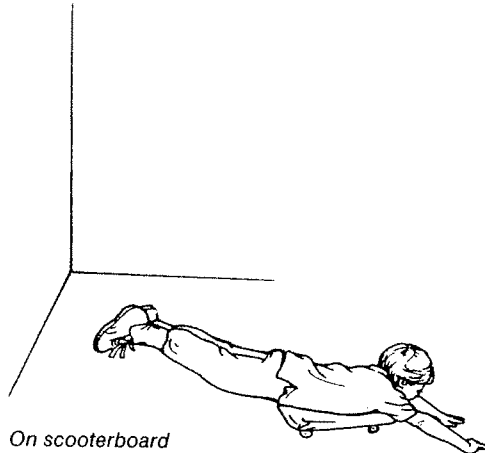
Increase length of time for maintaining these positions or engaging in these activities as abilities and comfort increase.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

POSTURAL CONTROL  
Gym, Playground, and Extracurricular Practice  
**TRUNK EXTENSION**



**Purpose**

To improve child's ability to use the muscles that result in straightening the trunk

**Preparation**

If tone is abnormal, spend a few minutes working on normalizing tone before beginning this activity.

**Activities**

Any activity that requires pulling the back into an arched position is helpful. Incorporate these into classroom movement or gym activities.

1. Scooterboard. Child lies on stomach on a scooterboard, keeping arms and legs up. Child pushes off from a wall by starting with legs bent and feet against wall, then straightens legs to propel scooterboard forward. The back is arched, the head and shoulders are raised, legs and hips are extended, and arms are either bent at the elbow to hold onto the scooterboard or held straight out in front. Child propels scooterboard as far as possible to beat previous distance records or another child's performance.
2. Swings. Child lies on stomach on a swing and runs forward. Arms are held straight out in front or used to hold onto swing; body weight rests on chest or upper abdomen. Child lifts feet off the ground and swings in this position. Soft swings or net swings work well for this.

Child maintains this position on a playground swing or net swing while throwing beanbags or balls into a bucket or at a target.

3. Prone extension positioning. Child lies on stomach and arches back and neck while pulling straight arms and legs off the ground. Child is encouraged to "fly like a bird" for increasing periods of time as skill improves, and to rock from side to side in this position.
4. Physioball. Adult provides support as child lies on back over a large ball so that gravity and the shape of the ball lengthen the muscles that flex the trunk. Child rolls onto stomach, then lies on ball; adult provides support at the hips, knees, or ankles. Adult tips ball forward so child can reach a ball placed on a chair or the floor, and then pulls child back up onto the ball so child can throw the ball at a target or into a bucket. Arching of the back and straight arms are encouraged. Exercise is repeated.

5. Wheelbarrow walking. Child arches back and holds head up while adult or another child supports legs. Child walks on straight arms and attempts to walk for longer distances or lengths of time.

**Desired Response**

Child arches back, raises head and shoulders, extends legs and hips; child maintains this position for increasing periods of time.

**Variations and Adaptations**

If child is unable to maintain this position independently, start with activities that involve passive positioning, such as lying on stomach in a net swing or hammock while throwing a beanbag. The net swing should support the child's body in an arched position from the thighs to under the arms. Progress to activities that require active holding of this position (such as the same activity on a soft playground swing) for very short periods of time.

If child sits with very rounded back, encourage sitting with arms behind trunk when watching television or engaging in group sitting activities.

Increase length of time for maintaining these positions or engaging in these activities as abilities and comfort increase.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

**POSTURAL CONTROL**  
**Gym, Playground, and Extracurricular Practice**  
**BALANCE**

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**Purpose**

To improve balance

**Activities**

Many activities commonly presented in gym class, on the playground, and in extracurricular sports help to develop balancing skills. Any activity that places the body off-balance and requires the child to correct the position is helpful.

**Games**

1. Incorporate standing or hopping on one foot with eyes open or closed into relay races or "follow-the-leader" games.
2. Children stand facing one another across a taped line, elbows bent and palms touching. By straightening the arms and pushing quickly against the other child's hands, each tries to make the other lose balance and move feet.
3. Child stands or sits on a tiltboard (round board that tilts to all sides) and engages in ball activities. Children take turns being IT and standing on the board in the center of a circle of children. Children throw the ball to the person on the board, who throws it back to another child. See how many catches and throws can be accomplished without falling off the board, or time how long a child can maintain balance before another child becomes IT.
4. Tape lines on the floor in the shape of a funnel (angled so the opening is wider at one end than at the other). Children walk one at a time through the funnel without touching either side. Each time this is done, successful children hold hands and try again, until large groups of children are going through together.
5. Place beanbags on the children's heads and encourage the children to keep them there during relay games, skipping, walking, running, and galloping.
6. Call out combinations of body parts, and encourage children to balance on those parts for as long as possible. Children can balance on one leg, right knee and left hand, both hands and one foot, and so on.
7. Set up obstacle courses that include plenty of balancing activities (ladders, hoops to walk around, mats to walk over, ropes, and taped lines and circles to walk on).



**Gym and Playground Toys and Equipment**

1. Taped lines and circles, balance beams of various heights, railroad ties, and old tires can be used for developing balance. Encourage child to walk on them with hands on hips, touching the heel of the front foot to the toe of the back foot.
2. Equipment with moving surfaces, such as platform swings, balance boards, and tiltboards, can be incorporated into gym or after-school activities. Always provide adult supervision when this kind of equipment is used.
3. Get a large barrel (usually cardboard) from a co-op or other grocery store. Line it with carpeting. This toy is fun for home or school and can be used for many balancing activities, such as sitting on top, standing on top, or rolling by walking on top. (This is an advanced skill and requires adult assistance or supervision.)
4. Hippity Hop Ball® (a large ball with a handle that children bounce on), Pogo Ball® (a disc with a ball in the center, which children stand and bounce on), and large physioballs (for sitting or lying on), are commercially available toys that develop balancing skills.

**Sports**

Skiing, skating, gymnastics, trampoline, dancing, bicycle riding, and swimming are excellent balancing activities. Children with very poor static (nonmoving) balance often are able to do well in activities such as these which require moving balance. Don't assume that a child who can't stand on one foot (static balance) will not be able to ride a bicycle. For learning to ride a bike, it often helps to practice riding a two-wheeled scooter to develop balance skills before adding the pedaling motion of a bicycle.

**Variations and Adaptations**

Children with poor balance may find this kind of activity frightening. Teach these activities in an individualized, noncompetitive manner. Provide external support (an adult's hand, a grab bar, or the wall) for as long as necessary. Decrease the amount of external support as skills increase, by having the child merely touch one finger to the wall or an adult's hand. Encourage the child to balance independently as much as possible, but respect the child's fears and take precautions to ensure safety. Use gym mats for balance activities whenever possible.

Balancing is easiest on wide lines on the floor. Progress to thinner and higher balancing surfaces as skill improves.

For most children, it is easier to balance during movement than while standing still. If the class is standing on one foot, a child with poor balancing skills may do better if encouraged to hop on one foot. Encourage the child to hop less on successive attempts and eventually to stand on one foot for a short period of time.

If a child has difficulty with gym or playground activities due to poor balance, modify the activities so the child can participate from a sitting position or has access to external support. For example, the child can practice throwing and catching balls from a sitting position and hold onto a chair or bar for practicing dance activities.

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Hippity Hop Ball® is a registered trademark of Wellington Leisure Products.

Pogo Ball® is a registered trademark of Hasbro, Inc.

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

Child's Name \_\_\_\_\_

Date \_\_\_\_\_

POSTURAL CONTROL  
Compensatory Strategies

## MAINTAINING UPRIGHT POSITION

### Purpose

To improve child's ability to maintain stable upright trunk position during fine motor activities

### Strategy

Children who do not have good stability have difficulty controlling arm movement because they lack a secure base from which to initiate movement. To help these children to compensate, consider ways to provide external stability so the trunk is steady.

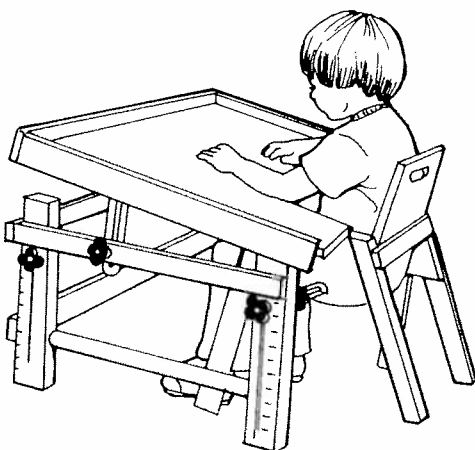
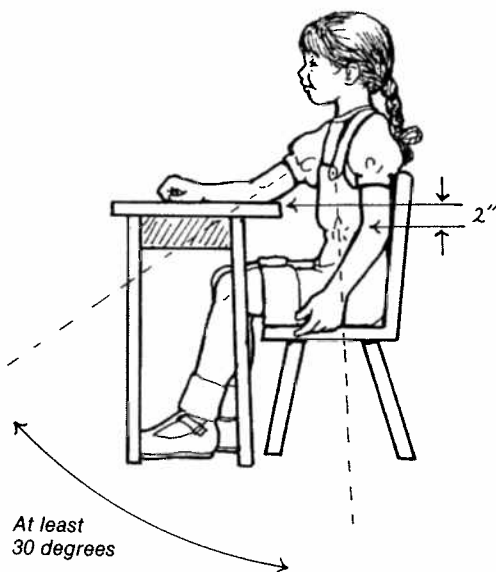
### Suggested Adaptations

#### Stable Sitting Positions

1. Desk surface is at correct height to support arms, about 2" above the level of the elbows when elbows are bent and child is sitting upright in chair. Upper arms are never at less than a 30-degree angle from the child's trunk. Feet rest flat on the floor, the pelvis is at the back of the seat, and hips and knees are bent approximately 90 degrees.

Modify standard wooden chairs so they provide more stability by attaching armrests and a footrest. If trunk control is very weak, a higher desk surface can increase trunk stability.

2. Beware of plastic classroom chairs, which are rapidly replacing wooden chairs. Many of them have backs that tilt the child and seats that are too long for the child to sit back. These problems result in compensatory postures that limit stability and movement of the arms and hands.
3. Cutout desks provide stability for arms and trunk and are helpful for children who need more support than is offered by a modified chair.
4. Slanted desk tops often encourage upright posture because the child can look at materials without bending the neck forward. Slanted tops that can be placed on a table or regular desk are available commercially.
5. Cross-legged sitting position is more stable than long-sitting or side-sitting and is easier to maintain when using the hands.
6. Sitting on an adult's lap provides a very secure, well-supported position for individual or group activities.



7. Children can increase stability by sitting with back against a wall or couch or in a corner. This is a good position for dressing activities (pulling on shoes, socks, pulling on pants, and so on).
8. Often a child is able to sit more securely (and with more upright posture) for fine motor activities in a chair at a desk or table than if seated on the floor.

### **Sitting Instead of Standing for Activities**

1. Encourage the child to sit while doing activities that are difficult in a standing position. For example, putting on a jacket, pulling on pants, tying shoes, and writing on the chalkboard are activities that can interfere with balance, and all can be performed in a seated position.
2. Desk-top easels make chalkboard, painting, and other activities possible in a seated position.

### **Comments**

Do not use these suggestions exclusively (without encouraging activities designed to increase postural control) unless it has been determined that the child's control or balance will not improve to a functional level with practice. For more physically involved children, extensive adaptations must be used to achieve good sitting posture. If unable to maintain the desired position with the above suggestions, consult with a therapist.

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