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Board of Education
Physical and Occupational Therapy Departments

**Standers, Sidelyers, Tumble
Forms Feeder Seats, and Corner
Chairs/Floor Sitters**

(7/98)

Standers and the Effects of Passive Standing

Passive standing is being incorporated more and more into physical and occupational therapies alike. It provides vital medical, functional, and social benefits to the involved child.

Specific Benefits of Passive Standing

- Bone growth & weightbearing - Although active muscle contractions best stimulate bone density/growth, there is also current research that supports the benefits of passive standing in increasing bone density.
- Decrease tone - Studies have shown a significant decrease in tone in the lower extremities when the ankles were dorsiflexed in a standing position (versus dorsiflexed ankles in the supine position).
- Increase in/ maintaining of range of motion - helps elongate hip & knee flexors. Ankle plantarflexors can be put on a stretch by adjusting the angle of the foot plate.
- Improved head & trunk control
- Good base of support from which to work on fine motor activities
- Enhanced emotional, cognitive and perceptual growth
- Sensory input - the body will have the sensory input of standing via joint proprioceptors; standing also provides a new visual perspective of the environment for the child.
- Pressure relief - Standing offers an alternative position to sitting. It takes the pressure off of bony prominences normally affected by prolonged sitting (i.e., ischial tuberosities).
- Improved respiration, digestion, and renal/bladder function as the trunk and the organs within the trunk are better aligned.
- Increased circulation- Patients with a loss/decrease in skeletal muscle pumping, sympathetic vascular (blood vessels) tone, and plasma volume (i.e., patient with spinal cord injuries, sluggish/ deconditioned children with lower extremities weaknesses) can exhibit insufficient orthostatic circulatory regulation and have problems maintaining blood pressure and cardiac output. Although the reason is not fully understood, it is well accepted that repeated standing can lead to cardiovascular system adaptation which improves circulation for functional activities.
- Reduced bone calcium loss and urinary calculi (less were being removed by the body as per urine analysis).

Supine vs Prone Standers

The more vertical the stander is positioned, the greater the amount of weightbearing. Supine standers provide greater normal standing weightbearing than the prone standers as there is dynamic pressure through the heels. Weightbearing in prone standers occurs primarily in the forefoot.

If feet & ankles are not well aligned (i.e., significant pronation & eversion), orthoses should be obtained for use with the standing program.

Supine Standers:

- Most appropriate for preambulation skills and conditioning.
- Allows for greater weightbearing along the tibia, femur & the heels.
- The supine stander encourages activation of abdominal muscles, especially when the child works with the upper extremities. This may be due to the head righting & optical righting reflexes which encourage an individual to flex one's head and activate one's abdominals in order to get eyes/head in the most optimal position from which to view the environment.
- Children with poor head control are better placed in a supine stander since it usually provides a posterior support for the head.
- Most supine standers allow for better lower extremities alignment as the child can be initially placed completely horizontal (gravity assisting knee extension) when securing the knee straps.
- Most supine standers (if not all) come with tables for tabletop/fine motor activities.
- Upper extremities range of motion activities can also be performed (i.e., in functional patterns/diagonals) while in the supine stander.

Prone Standers:

- Generally encourage active head and trunk extension. Again, may be due to head and optical righting reactions. Head will extend in order to best position the eyes for viewing of the environment. However, you must monitor the child to make sure he/she is not over-compensating for weakness by hyperextending the neck and exaggerating shoulder retraction.
- Prone standers provide for increased upper extremities weightbearing (more than the supine stander) when a tray is placed in front.
- Some prone standers make positioning the child difficult. Some prone standers do not start off in a complete horizontal position. Since some of these are at an angle to start, the child will tend to flex his/her hips & knees when being placed in it (due to gravity & at times, weakness in the legs).

Mobile Standers ("Standing Danny"):

- Good for children who have upper extremities function and who can follow instructions to propel around their environment with their arms.
- Allows the child to more actively interact with his/her environment.
- It is helpful if the child has at least fair/fair+ antigravity strength in their legs. If the child has fair- lower extremities strength (antigravity), it may help to have a buttock support which provides a force that pushes the buttock/hip into a neutral position.

Proper Positioning in the Stander

Child should have lower extremities as straight & neutral as possible in order to maximize the weightbearing & passive stretch effects. If a child has hip dislocations, you can abduct the legs slightly (approx. 20 degrees) to improve the femoral head/acetabulum congruency. (See comments below re: hip dislocations/subluxations).

A common mistake in the prone stander is having the hips flexed and the buttocks sticking out.

Standers often come with adjustable wedges, hip/head guides. Be sure to adjust these for the most optimal positioning. Knee straps should be placed proximal to the knee joint so as to avoid harmful compression of the patella against the knee joint. The trunk strap should be directly under the axilla (approximately 2 fingers width only).

**** When the child looks fatigued or starts to slump in the stander, the child has gone beyond his/her tolerance level. For non-verbal children, look at their facial expressions/non-verbal communication to see how they are tolerating the stander.**

Hip dislocations/ Hip subluxations

Many doctors now advocate the use of standers, even in cases of children with hip dislocations/subluxations. You may, however, want to consider abducting the legs slightly (approx 20 degrees) to improve femoral head/acetabulum congruency.

If you feel more comfortable speaking to the child's orthopedist about this matter, please do so and document the discussion in the charts for future therapists. Just keep in mind that hip dislocations/subluxations are not an absolute contraindication to standing/stander use.

Ordering Standers for the Home

Many parents like the idea of their child weightbearing and interacting with the environment in an upright position. Always advice the parents/guardian, however, that the use of the stander requires a commitment on their part and it requires having enough help in transferring the child into the stander (especially for

larger/heavier children). In addition, parents must also be informed that standers often take up a lot of space in their home/apartment; this may be a real issue in many NYC apartments which tend to be small.

If the parents/guardian are committed, has the help needed, and has the space available, you can start the process by instructing the family to get a doctor's prescription for a stander. You should try the child in various standers before recommending a specific one because children will often present differently than you would expect.

Once a prescription is obtained, refer child to the equipment clinic of the hospital with which he/she is affiliated.

IEP Goals

You can work to increase student's standing tolerance in the stander (i.e. John Smith will tolerate 20 minutes in the supine stander with supervision for classroom activities).

An occupational therapy goal may be to encourage table top activities while in the standers (i.e., Mary Smith-will be able to write/reach for objects/cross midline/manipulate objects with both hands while in the supine stander).

Reminder: When the child looks fatigued or starts to slump in the stander, the child has gone beyond his/her tolerance level. For non-verbal children, look at their facial expressions/non-verbal communication to see how they are tolerating the stander.

Purpose

The sidelying position is used because it offers an alternate resting or working position in which the pull of gravity is equal between the flexors and extensors.

Advantages

- Sidelying promotes trunk, hip, and knee flexion.
- It decreases extension.
- Sidelying balances the force of gravity between flexors and extensors.
- It facilitates midline hand position.
- This position eliminates the pull of gravity, which enables many students to reach out with their arms and perform functional activities.

Limitations

- Sidelying can put increased stress and force on joints.
- It requires work from many muscle groups, which can be fatiguing.
- There is a risk for pressure over bony parts of the body.

Positioning

1. The student should be placed on the side where function is optimal and involvement is minimal. In some cases, this may be either side.
2. The height of the pillow can be determined by measuring from the neck to the end of the shoulder. In addition, a pillow behind the head may be needed to keep the head forward and prevent arching of the neck.
3. If scoliosis is present, position the student to reduce the spinal curve.
4. Weight-bearing limbs should be slightly flexed. Non-weight-bearing limbs should be free to move.
5. Chest straps or other straps may be needed in order to maintain the proper position.

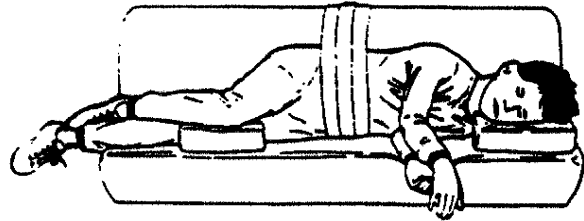
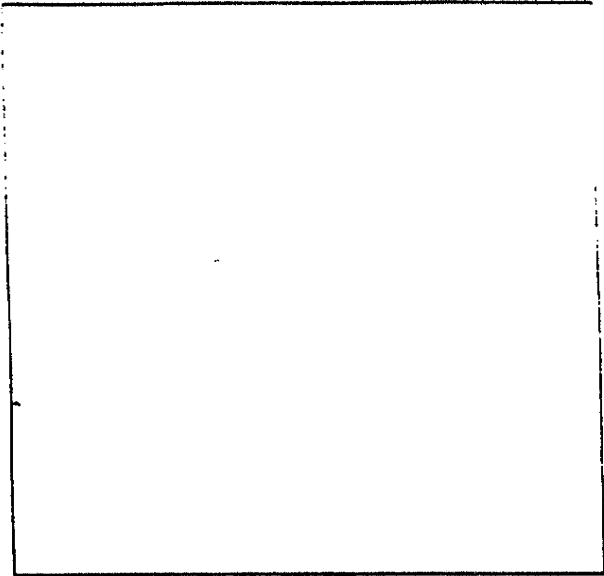
Precautions

1. Monitor the student for pressure over bony areas such as hips, knees, and ankles. If redness develops on the skin and does not disappear within 15 minutes after changing from the sidelying position, consider modifications.
2. Watch for skin discoloration and check to see if extremities, especially the lower arm, are getting cold. Too much body weight on the arm can decrease circulation and cause the arm to turn blue and get cold. Try repositioning the arm or changing the position completely.

Sidelying / Sideliers

Positioning Guide

Student Name: _____ Therapist: _____



Positioning

1. Place the student on the (right, left, alternate) side on the sidelyer as determined by the therapist.
2. Place a pillow under the head to support the head and neck in line with the body. Position a pillow behind the head if instructed by the therapist.
3. Make sure the bottom arm is pulled forward at the shoulder so the student is not putting a lot of weight directly on the shoulder.
4. To help the top arm relax, support it with a pillow or stuffed animal.
5. Place a pillow between the legs to support the upper leg and take pressure off of the lower leg. The upper leg may need to be bent for a relaxed position.
6. A belt or pillow may be needed at the chest to maintain the sidelying position.
7. Maximum duration in sidelying: _____.
8. Objects for visual or functional activity should be placed as follows: _____.

Precautions

1. Monitor the student for pressure over bony areas such as hips, knees, and ankles. If a red area develops, take the student out of the sidelying position. If it does not disappear within 15 minutes, consult the therapist.
2. Check the skin for discoloration, especially the lower arm. Too much body weight on the arm can decrease circulation and cause the arm to turn blue. Try repositioning the arm or changing the position completely.
3. Take into consideration the classroom activities to make sure the sidelyer is used in a safe area.

Maintenance

1. Wipe off the surface of the sidelyer with a cleaning solution.
2. Report to the therapist any holes on the equipment or repairs needed.
3. Keep all straps/pillows with the sidelyer.

Individual Adaptations/Comments

Tumble Forms® Feeder Seat®

Therapist's Information and Classroom Handout

Purpose

The Feeder Seat® is used to help position students with a wedge on the floor or in other equipment, such as a swing or chair. It is called a Feeder Seat because it is often used to position students for feeding.

Advantages

- The Feeder Seat is cushioned and comfortable.
- It comes in bright, friendly colors.
- The Feeder Seat can be easily cleaned.
- Adaptations can be added to the Feeder Seat, such as head supports and shoulder straps.
- The Feeder Seat can be tilted back for students who do not have control of their head and cannot hold it upright by themselves.

Limitations

- The Feeder Seat can be expensive.



* Therapist will need to determine the optimal angle to position the seat.
children should be supervised in these seats as they can be pushed over when placed on the floor.

Corner Chairs/Floor Sitters

Therapist's Information

Purpose

Corner chairs are used to support the trunk in extension while encouraging a forward arm position for free upper extremity movement.

Floor sitters are usually used so students with disabilities can have the opportunity to be near their peers and experience weight shifting. They also have been used with students who need more support to sit for long periods of time or to free their hands for activities.

Advantages

- This equipment allows students to be at floor level with peers or elevated to table height.
- It frees up arms for more hand function.
- The corner chair and floor sitter are portable.
- They offer an alternative independent sitting position. Often, sitting in a position where the legs form a "W" is the only other alternative.
- This is a good interactive position, especially for functional activities like eating.

Limitations

- It is often difficult to maintain students in a long-sitting position for hamstring stretching.

Positioning

1. A 90-degree back angle offers little support to help extend the spine, and often students react by flexing forward at the trunk. Therefore, a 90-degree angle is best when used with students who only require minimal support for scapular protraction. A three-piece back has a flat support in the center to bolster the spine in extension and two sides that facilitate a forward arm position. Many floor sitters have a cube-like appearance that resembles a chair.
2. Usually the back of the corner chair or floor sitter is at shoulder height. The height may need to be extended if the student has a habit of hyperextending the neck. The sides do not need to be extended above the shoulder level.
3. To determine the hip and knee angle, it may be necessary to observe the student in a long-sitting position and with the knees flexed to 90 degrees. If students compensate for tight hamstrings by posteriorly tilting their pelvis and rounding their trunk, long-sitting may not be the best position. Often, when using a long sitter to try to gradually stretch the hamstrings, students will compensate and demonstrate a poor posture. When students are positioned with the knees flexed, make sure the seat depth allows the knees to bend.

4. The seat angle of corner chairs can be changed to facilitate active flexion and to quiet spastic hip extensors.
5. Students should be positioned with the body in a symmetrical position. Hip guides or lateral blocks can be used to keep the pelvis midline and the legs in a neutral position.
6. An abduction wedge may be needed for students with tight hip adductors.
7. Lap trays are helpful to encourage slight head and neck flexion and a forward arm position. They also provide a surface for activities.

* Children should be supervised in these as they can push corner chairs over when seated on the floor.

