Half-Lapboard for Hemiplegic Patients

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Lapboards and arm troughs are commonly used on wheelchairs to help patients with cerebral damage position their hemiparetic extremity (see reference list). These devices support and place the impaired extremity in a desired position, help control edema, and prevent injury to anesthetic limbs. Generally, lapboards are used when patients have poor trunk control, have visual field deficits, require greater variability of upper extremity positioning, or need a work surface. Arm troughs are used when patients require a device that does not interfere with their ability to independently propel their wheelchair or perform transfer activities.

At our facility, problems arose when neither device fit the needs of individual patients. Arm troughs frequently positioned the arm out of the patient's visual field and contributed to neglect of and accidental trauma to the anesthetic extremity. Combining the positive features of both the arm trough and the full lapboard, a half-lapboard (see Figure 1) was designed as an alternative support for the hemiparetic upper extremity. It slides onto the wheelchair armrest and is

Figure 1
Half-Lapboard in Place on Wheelchair

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secured with two Velcro straps. Its specific advantages are as follows:

1. It positions the arm within the patient's visual field.
2. It does not interfere with the patient's use of the sound arm and leg for wheelchair propulsion.
3. It allows the patient to be independent with transfers.
4. It allows more freedom of movement of the trunk and unimpaired arm thereby promoting static weight bearing through the lower extremities and affected arm.
5. It allows the position of the pelvis to be visible for correction of alignment.
6. It provides the patient with a more adult, and therefore more socially acceptable, set-up than does the full lapboard.

The following materials are needed for construction.

1. Three pieces of wood
   a) Top piece—12 in. × 24 in. of ½ in. plywood
   b) Middle piece—1 ½ in. × 16 in. of 1 in. pine
   c) Bottom piece—2 ½ in. × 16 in. of ¼ in. plywood

2. Two cinch straps, each made from
   a) 16 in. lengths of 1½ in. wide webbing strap
   b) 4 in. lengths each of hook and loop Velcro
   c) D-rings

The top piece is cut into the shape illustrated in Figure 2 and all corners are rounded. Two gutters are then cut or sanded into the middle piece to accommodate the straps. The gutters are approximately ¼ in. deep and located 4 in. from the front end and 2 in. from the back end of the middle piece. The bottom piece fits under the wheelchair armrest and serves to stabilize the lapboard by counterbalancing the weight of the patient's arm. After the three pieces are cut and sanded, they are glued, assembled, and clamped together.

For each self-cinching strap, the D-ring is sewn onto one end of the webbing, and the Velcro is stitched on the opposite end with both the hook and the loop on the same side. Both pieces of Velcro must be long enough to resecure the straps when the lapboard is in the vertical position. The straps are inserted into the gutters from the outside so that the D-rings are visible on the outer edge.

For transfers, the patient loosens the straps, resecures them at a lengthened position, then rotates the lapboard vertically to the side of the wheelchair. The straps suspend the lapboard in the vertical position (see Figure 3). For patients with visual-perceptual...
deficits, Velcro “buttons” can be used as tactile cues for resecuring the straps at the proper tension.

Since we began using the half-lapboard in 1984, it has proven to be an effective and economical positioning device for hemiplegic patients. (Approximately 250 of our patients have used the device.) In 1986 a similar device was made available for the first time by BeO(K/Fred Sammons, Inc. (PO Box 32, Brookfield, IL 60513-0032); but it lacks the flip-up feature of the device described here.

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References