

# Chair Inserts for Preschoolers

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*Cardboard chair inserts can be constructed in a minimal amount of time for a nominal expense.*

■Preschool children with physical impairments have special furniture and equipment needs (Connors, Williamson, & Siepp, 1978). Adaptive seating equipment for these children is crucial to their physical and educational development (Bergen, 1974). Proper adaptive seating equipment should inhibit abnormal reflexes and muscle tone, while simultaneously facilitating more normal body movement (Bobath, 1969).

## Background

The primary objective in developing an adaptive seating system is to maximize the student's motor development and independence in functional activities (Bergen, 1974). The adaptive seat should be readily available, reasonably priced, and individualized to the student's physical needs. It must be flexible, adapting to changes in the child's size, motor abilities, and functional needs as well as in his or her social environment.

These requirements led the teaching staff of our demonstration class for infants and toddlers with severe and multiple handicapping conditions to investigate the feasibility of building adaptive chairs using double-walled cardboard. Their effort resulted in inexpensive chair inserts that can either be placed in commercially made cube chairs or attached to other types of preschool chairs. The physical positioning and support needs of individual children were determined under the supervision of a staff physical therapist, and specific design features

for meeting these needs were provided by a consulting occupational therapist. The chairs were constructed by the teaching staff inexpensively (\$5 to \$10 each) and with minimal construction time (approximately 2 hours each). The procedures the teachers followed are described in this article. It is important to note, however, that although teachers can follow the instructions for construction, a physical or occupational therapist should be consulted during the motor assessment of the child to determine the child's positioning needs (i.e., the type and amount of support needed for an optimal sitting position) and to guarantee accurate chair measurements.

## Design Steps

Adaptive equipment is, by definition, customized to meet the physical needs of individual children. In order to customize the equipment, a blueprint for construction must first be developed. This involves three steps: (a) assessing current sitting status; (b) designing equipment that provides a balance of support; and (c) obtaining the measurements for the insert. The design should prevent the child from falling into nontherapeutic positions and force the child to attempt to maintain a correct sitting posture.

### Step 1: Assess Current Sitting Status

The first step is to assess the child's current sitting position by placing the child in a sitting position with as little

support as necessary. A description of the child's hip position, trunk alignment, head position, and general body symmetry should be developed in consultation with a physical or occupational therapist. This information is used to determine the child's optimal sitting position and to decide what support is needed to achieve the ideal sitting position. Considerations include approximating normal hip position, trunk elongation and symmetry, total body symmetry, and active maintenance of an upright sitting position (Hobson & Trefler, 1981).

### Step 2: Provide a Balance of Support

In consultation with a physical or occupational therapist, the next step is to determine what type of structural support is needed to maintain the optimal sitting position. Emphasis should be placed on providing as little support as possible, to allow for the child's active participation in maintaining the correct position but not allow the child to fall into nontherapeutic positions.

### Step 3: Obtain Measurements for the Insert

Insert measurements are derived by measuring the child as he or she is held in the prescribed optimal sitting position. The types of child measurements needed and the procedure for determining the chair measurements from them are shown in Figure 1. In the remainder of the article the upper case





