When designing and providing wheelchair seating systems, the rehabilitation team aims for a balance of components that will provide external support for the person who, because of lack of neuromotor or neuromuscular control, cannot independently maintain a seated posture. Over the past 10 years, many new approaches to fabricating seat and back components have helped solve trunk and pelvic positioning problems (Bergen & Colangelo, 1985). Positioning of the head, however, is still a challenge, particularly for persons who drop or pull their heads into flexion.

Secure positioning of the head can significantly improve functional skills because it allows the person to concentrate on task performance and not on maintaining head position (Taylor, 1987). Many anterior devices, such as halos and head straps, are used, but persons using these devices can hyperextend the neck and come out of the device or pull forward until the strap falls off. Soft cervical collars, chin supports, and collar and vest supports are other head positioning devices, but they are not always appropriate (particularly for persons who have swallowing difficulties or tracheostomies) and can be bulky, unsightly, and costly.

We have designed an inexpensive ($30) headband that, when used in conjunction with an appropriately fitted seating system, provides anterior head support and holds the head upright. Design criteria were as follows. The headband had to be (a) adjustable to allow some movement of the head in a sagittal plane when appropriate; (b) as unobtrusive as possible; and (c) easy to attach and remove, particularly in emergency situations.

Description

The headband consists of a 1- to 2-in. piece of webbing (depending on head size) covered with fabric for comfort, fitted snugly around the circumference of the user's head just above the ears. A smaller piece of webbing is attached perpendicularly to either side of the strap and placed over the head to prevent it from slipping down over the eyes. Another strap is sewn to the back of the circumferential strap to provide a posterior and downward force at the back of the head (see Figure 1). An adjustable four-bar buckle attached to this strap allows the head position to be adjusted in an anterior/posterior plane when appropriate; (b) as unobtrusive as possible; and (c) easy to attach and remove, particularly in emergency situations.

The headband has been used in conjunction with an Otto Bock\(^1\) neck collar and a two-step headrest that wraps around the hardware of

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\(^1\) Manufactured by Otto Bock Orthopedic Industry, Inc., 4130 Highway 55, Minneapolis, MN 55422.
the neck collar, and the Shapeable Matrix Seating System.²

Conclusion

Thus far, the headband has stayed in place and provided upright or neutral head positioning for 30 persons with head control problems. Their diagnosed conditions have included cerebral palsy, brain stem injury, and spinal cord injury. With five persons, two of which were microcephalic, a snapped chin strap (from an athletic supply store) was added to keep the headband from slipping off the top of the head.

Like other custom-designed seating system accessories, this headband does not work for all persons with head control problems. Of those for whom it didn't work, two had widely fluctuating tone so that the headband did not stay in position, and one did not like the strap to confine his head.

When providing this headband, the therapist has to make sure that there is sufficient occipital support for the headrest. It is also essential that anterior trunk support be provided if the headband is to stay in its appropriate position to maintain head positioning. Finally, it should be noted that some persons do not tolerate the chin strap addition for reasons such as excessive drooling and skin sensitivity.

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References


² Distributed by Pin Dot Products, 8100 North Austin Avenue, Morton Grove, IL 60053.