Sliding Forearm Rest for Parallel Bars

Suggestion from the Field

SUZANNE POSEY
and DAVID PEARCE

PROBLEM

Forearm trough canes or platform crutches have been advocated for patients with rheumatoid arthritis because they protect the joints of the hands and wrists. Parallel bars are standard physical therapy equipment used for teaching gait patterns when assistance for support and balance is needed. Using the parallel bars is difficult, however, for patients with limited or nonfunctional handgrip. This problem prompted the development of the sliding forearm rest attachment for the parallel bars, and the rationale for the forearm trough canes was the basis of its design.

SLIDING FOREARM REST

Construction

The sliding forearm rest consists of a pair of forearm troughs* attached to a U-shaped frame. The frame is supported by four trolleys that ride on the parallel bars. The device can be fabricated by a machine shop from readily obtainable materials (Fig. 1). The total cost is approximately $232, exclusive of labor: parts for the U-shaped frame and trolleys cost approximately $100, and the forearm troughs are $66 each.

The U-shaped frame (Fig. 2) is made from 3/4-in (2.0-cm) electrical conduit. The length of the sides of the U-shaped frame can be any appropriate length, but the width is determined by the centerline distance between the horizontal rails on which the trolleys ride. Our trolley design is based on a parallel bar with a diameter of 1% in (4.0 cm). Each outer housing is made from a 1½-in (3.9 cm)-long standard water pipe, 2 in (5.0 cm) in diameter. A slot that is 1% in wide is cut in the bottom of the pipe, and a hole 1 in (2.5 cm) in diameter is drilled in the top. Four pieces of bandiron ½ in thick by ½ in wide (0.3 cm × 2.0 cm) are cut to a length of 1½ in (3.9 cm). The bandiron pieces are bent to conform to the inside of the outer housing and then brazed in place. Holes ½ in (0.8

---

* Invacare Corp, 1200 Taylor St, PO Box 4028, Elyria, OH 44036. Specify Catalog #6035.
† 99RAA, New Departure Hyatt Mfg Co, 2509 Hayes Ave, Sandusky, OH 44870.
cm) in diameter are drilled in each piece to hold the bearing support screws. The ball bearings† are mounted on ¼ - 20 machine screws 1 in long. The machine screws are placed in the bearing support holes, a ¼ - 20 nut is placed on each screw, and the bearings are positioned so that the trolley rides smoothly on the parallel bars.

After all four trolleys are made, they are placed on the bars, and the U-frame is placed on top of the two ears protruding above each of the top bearings. The trolleys are then carefully aligned with the U-frame, and the ears are brazed to the U-frame. After the forearm troughs are attached, the unit is functional. As a safety precaution, automotive hose clamps are placed on each end of each parallel bar to prevent the device from running off of the ends.

**Patient Use**

The height of the armrest can be individualized by adjusting the height of the parallel bars. Electrically operated parallel bars are recommended for simultaneous adjustments in height of both horizontal rails. The width of the forearm troughs can be adjusted by tilting the trough upright on the U-frame to accommodate each patient and various degrees of shoulder abduction.

To use the device, the patient comes to a standing position, places forearms in the forearm troughs, depresses shoulders, supports body weight on forearms, and by pushing the device forward, achieves forward propulsion in the parallel bars (Fig. 3). After ambulating the length of the parallel bars, the patient can either turn around and continue ambulating, or the device can be removed from the bars by removing the

**DISCUSSION**

The sliding forearm rest has been in use for over a year at our facility. Although the original plans were to use the device for gait training of patients with rheumatoid arthritis, we have found it useful for any patient having limited or nonfunctional handgrip or decreased weight-bearing tolerance on wrists. Also, this device has been used for gait training of patients with incomplete spinal cord injuries, upper extremity fractures, upper extremity amputations, and strokes. Use of the sliding forearm rest has enabled therapists to help these patients to ambulate more quickly and safely and with less stress to other involved joints than would have been possible without the forearm rest.

**Acknowledgment.** We wish to thank Mr. Jessie P. Miller for his photographic contribution.

**REFERENCES**