

## BIOENGINEERING EVALUATION AND FIELD TEST OF THE STAND-ALONE THERAPEUTIC AID

**EDWARD PEIZER, PHD; WILLIAM M. BERNSTOCK, AM**

### INTRODUCTION

Early in 1963, laboratory evaluations of the Stand-Alone Therapeutic Aid were conducted by the Bioengineering Laboratory, the Testing and Development Laboratory, and the Limb and Brace section—all sections of the VA Prosthetics Center in New York, N.Y. Findings based upon evaluations of two early models were made known to a representative of the manufacturer, Corporation for Medical Engineering, 8472 East Garvey Avenue, South San Gabriel, Calif.

A newer model (Model FVA 2100) was submitted by the manufacturer for laboratory evaluation. In May 1963, five additional devices of this design were obtained for use in a field test to be administered by the Research and Development Division of the Prosthetic and Sensory Aids Service, located in New York, N.Y.

Five Veterans Administration hospitals having Spinal Cord Injury Services were selected for participation in the field test. We are grateful to the personnel who cooperated in the study at the following hospitals: VAH, Hines, Ill.; VAH, West Roxbury, Mass.;

VAH, Long Beach, Calif.; VAH, Memphis, Tenn.; and VAH, Richmond, Va.

The cooperation of the Area Medical Offices in Atlanta, Ga., Boston, Mass., Columbus, Ohio, San Francisco, Calif., and Trenton, N.J., is also acknowledged.

The independent experience which the Brooklyn Outpatient Clinic had with one patient using the device for approximately a 10-month period was also utilized in our study, and it too is covered in this report. In addition, the report includes data provided by the VA Hospital in Coral Gables, Fla., covering the use of one subject of the Stand-Alone for a 3-month period.

Also appreciated were the efforts of Mr. Earl A. Lewis of the Research and Development Division, PSAS, in the conduct of the study and the writing of the report.

### BIOENGINEERING EVALUATION OF STAND-ALONE THERAPEUTIC AID

#### Description

The Stand-Alone is a device designed for the use of paraplegic and incomplete quadriplegic patients for whom standing erect is of therapeutic value. It purports to offer them a relatively wide range of mobility while they stand, thus permitting them to carry on part of their normal activity, which might otherwise

be curtailed if they were to stand in bars or with braces and crutches. The Stand-Alone may be considered a mobile, portable, collapsible set of standing bars.

An earlier version of the model was initially submitted for evaluation. A mechanical analysis at that time brought out the following problems:

1. An extension of the frame designed to prevent tipping made it impossible to climb or descend a curb. It was also difficult to roll over a door threshold for the same reason.
2. There was a possibility of getting clothing caught in the exposed sprockets, locking handle, and hub nuts.
3. Locking handles interfered with the spokes of the handwheels when the locks were released.
4. It was difficult to insert the detent pins on the back crossbar assembly and to extract the pins when under load. The detent pins were too tightly fitted to the holds which received them.
5. It was difficult for the occupant to remove and detach seat.
6. The operating manual required further clarification.

To continue reading, please visit <http://www.rehab.research.va.gov/jour/64/1/2/1.pdf>.

