

Title: Assessment of Transfer Boards

Background

Transfer boards are assistive devices that allow an individual with mobility challenges to transfer between bed and chair, or other similar support surfaces. This study investigates characteristics of different transfer boards.

Method

Three different transfer boards (straight, curve and bone shaped) were evaluated. Boards were assessed by measuring: 1) The force required to extract the board from behind the subject whilst sat in a wheelchair (pulling force) using a Primus RS Dynamometer; 2) The force required to insert and extract the boards from under the subject with the boards placed on two standard commercial chairs arranged at 90° to each other, insertion force was measured using a Lafayette Hand-Held Dynamometer and extraction force using a ES-PS01 force measurement scale; and 3) Stability using the 3 axial ALC300 Biometric accelerometer attached to the under surface of each board. The lower the reading, the greater the stability.

Results

Ten healthy adult volunteers took part. Results are summarised in table 1.

Test	Straight board	Curved board	Bone shaped board
Pulling force (N)	39.1*	129.6	71.1
Insertion force (kg)	3.1	4.7	3.5
Extraction force (kg)	1.5	2.8	1.7
Stability	320	276	292

Table 1. Summary of the results. Data reported as Mean.

N.B. The straight board had a slot in it which people used and thus reduced the pulling force required. However, such a slot could cause skin damage during transfers.

Conclusion

Overall the bone shaped board performed well. It was the easiest to extract from behind the subject. It was as easy to insert and extract as the straight board, and was as stable as the curved board. It therefore appears to have the cumulative advantage over existing products.