

Technical note

Swimming devices for below-knee amputees

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Abstract

Two simple swimming devices that have been successfully fitted to unilateral and bilateral below-knee amputees are described.

Introduction

The value of artificial limbs for recreation is well acknowledged by amputees and therapists alike. Most below-knee (BK) amputees swim without any need for artificial limbs. This is not a great problem for the unilateral BK amputee. However, not everybody finds swimming with a single leg an enjoyable task due to the difficulties in getting to the water and the slight imbalance in water (LaBlanc, 1983; Saadah, 1987).

To improve the swimming function of such patients a flipper device was provided.

Bilateral BK amputees may be able to swim without any devices but find it difficult to walk up to the edge of the swimming pool. Socket devices have been devised which allow the bilateral amputee to walk to the swimming pool and swim with them on.

The flipper device — for unilateral BK amputees

A simple supracondylar acrylic socket is made in the normal way from the cast taken of the patient's amputation stump. A flipper is fitted to pedilen foam attached to the socket and kept in place by two rivets. A neoprene sleeve secures the socket to the amputation stump. Sometimes a liner is used in the socket for extra comfort but it is not totally necessary.

The overall length of the flipper is made equal to the natural length. However, it may be

better to have it slightly shorter to allow more freedom. This can be varied with the length of the flipper. The flipper should be offset laterally to avoid contact with the sound limb. The flipper (Fig. 1) has been found to improve amputees' swimming ability.

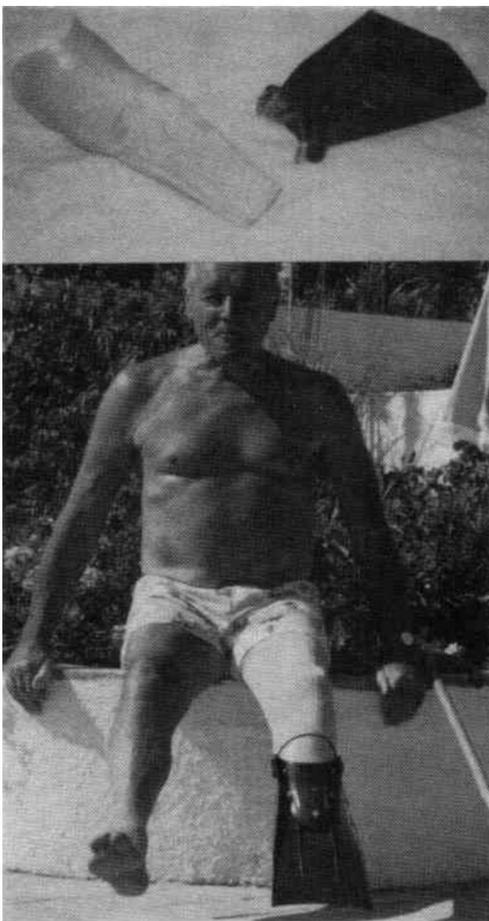


Fig. 1. The flipper device for the unilateral BK amputee.

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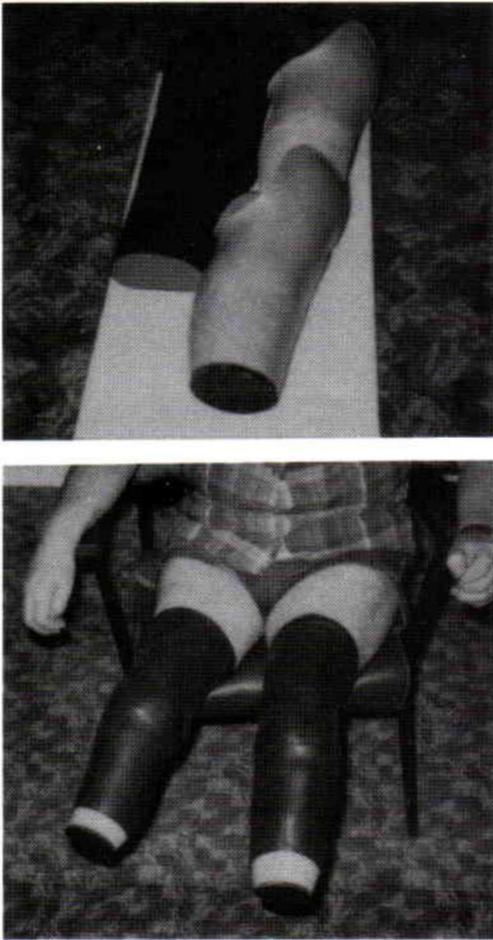


Fig. 2. The socket device for the bilateral BK amputee.

The socket device — for bilateral BK amputees

The bilateral supracondylar devices are made with a socket of glass-fibre reinforced plastic, and a pedilen foam extension which is laminated to a short circular rocker made of rubber. A liner is used in the socket. The sockets are secured to the stumps by neoprene sleeves for security (Fig. 2).

These devices allow the amputee to walk to the edge of the swimming pool with the help of short walking sticks where he can jump into the water with his prostheses on.

Conclusion

The flipper device has been provided to two unilateral BK amputees greatly improving their swimming function. The socket device has been satisfactorily fitted to one bilateral BK amputee.

Acknowledgements

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