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# A Modification of the VAPC PTB Brace

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Short leg braces with molded leather cuffs or ischial weight-bearing, long leg braces have been used for years to unweight the leg below the knee, the ankle, and the foot.

Using the Veterans Administration Prosthetics Center manual dated January 3, 1961, for the fabrication of below-knee weight-bearing braces, we measured, fabricated, and fitted two devices for patients with painful ankles. After the patients wore the patellar-tendon-bearing-type socket for some time, changes occurred in the anteroposterior measurement of their legs. With the hinge on the medial side of the socket, no adjustment could be made in that area. The lateral side could be adjusted by tightening the strap; however, the patients felt that the socket was not fitting the leg properly, and that it was twisted on the leg. Additional strips of Kemblo (TM) could be glued to the socket, but this increased its bulk.

We then made 13 braces, using the same method of measuring, casting, and correcting the positive mold, except that in the posterior area we built up the cast to obtain a roll in the popliteal and hamstring area. The distal edge of this build-up was at the mid-patellar-tendon level. The lay-up was then made in the same manner as for a hard PTB socket, using Dacron (TM) felt and a mixture of 70% rigid and 30% flexible resin. Vacuum is required to obtain a uniform socket thickness and to pull the PVA bag into the cast at the patellar-tendon and posterior areas. When the plastic resin has set and before it has completely cooled, the proximal end of the socket is trimmed as for a hard PTB prosthesis. The distal end of the socket should be cut off, leaving the socket as long as possible or as planned when the measurements and casts were taken. The posterior area of the socket is cut down the midline, and it is removed from the mold.

The foot piece is placed on the shoe, using either a regular rubber heel or a SACH-foot-type heel with or without a rocker bar on the sole. Limited ankle motion is usually prescribed; therefore, ankle-joint placement is critical. The uprights are contoured to the tracing and attached to the foot piece and shoe.

The socket is placed on the patient (a narrow section of the posterior socket may have to be cut out) at the proper height and taped in place. The shoe and brace are put on, and the brace uprights are aligned on the socket. The contours of the uprights are adjusted along the surface of the socket as necessary. The height of the socket is adjusted to remove the desired amount of weight from the patient's heel. The uprights are marked and taped to the socket, the fit being checked both standing and sitting. The brace and socket are removed, the excess upright length is cut off, and the socket is temporarily attached to the uprights with screws. The socket is replaced on the patient, and as little as possible of the posterior area of the socket is removed. The edges of the socket are trimmed and sanded. The entire brace and socket is removed from the patient. The socket is disassembled from the uprights and replaced on the mold. A PVA bag is pulled over the socket. A second socket is laid up, and the posterior two-thirds is laminated. The second socket is removed and the edges are trimmed. The first socket is then removed from the mold, and the uprights are riveted to the second socket. The edges of the second socket are adjusted to obtain the proper A-P dimension. The edges of both sockets are

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trimmed and finished. Velcro (TM) straps are added to hold the sockets in place.

If the anteroposterior aspect of the socket needs to be changed, the edges of both sockets may be adjusted to decrease the A-P measurement.

This type of brace has also been fitted on six patients with the socket laminated in one piece with the posterior aspect made of 80% flexible and 20% rigid resin. The sides and anterior portions of the socket were made of 80% rigid and 20% flexible resin. The posterior area of the socket is cut so that it is only 2 to 2 1/2 in. wide and opens at the posterolateral corner. A Velcro strap is used for closure. Anteroposterior adjustment is obtained by laminating a piece of Dacron felt across the entire posterior area.

This socket has the least bulk of the three described and has been preferred by the majority of the patients fitted thus far.