

A Treatment of the Below-Knee Stump Having Intermittent Breakdown

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On many occasions we have been faced with the problem of the below-knee amputee whose stump breaks down intermittently and as a result of this has been forced to wear an ischial-weight-bearing below-knee prosthesis. Quite often such a stump will improve to the point where the doctor involved feels that it might tolerate the conventional fit of a standard below-knee prosthesis. In the past we have handled this kind of situation by either converting the existing ischial-weight-bearing below-knee prosthesis to a standard type limb or by providing the amputee with a complete new prosthesis. When the latter course of action has been followed no serious prosthetic problems have developed. If the stump was unable to tolerate the fit of the standard below-knee prosthesis, the amputee still had his ischial-weight-bearing prosthesis available to wear. However, when the status of a stump is doubtful it is somewhat difficult to justify the expense of a new prosthesis to either the amputee or to the participating agency. Therefore, the conversion technique has been followed in most such cases.

When, however, a stump does not tolerate the changeover to the fit of a standard below-knee prosthesis three problems immediately arise. The amputee has no ischial-weight-bearing prosthesis to fall back on. A change back to the ischial-weight-bearing prosthesis involves considerable more expense. The amputee is "grounded" again during this second changeover which can cost him additional money by keeping him from his employment. Recently, because of necessity, we devised a way to avoid these three problems.

Our amputee patient had been wearing an ischial-weight-bearing below-knee prosthesis for over a year because of recurrent stump breakdown. He came to us with a prescription from his doctor who suggested that we provide this amputee with a conventional below-knee fit with a standard thigh corset. The prescription also indicated that the doctor wasn't sure that the patient's stump would tolerate a conventional fit but he thought it "worth the gamble." The amputee had read what the doctor had written and was quite concerned about the "gamble" involved. He wanted to make the conversion but had problems to consider. His financial situation wasn't very healthy although not bad enough to make him eligible for agency assistance. His boss was not the understanding type and too much lost time would likely result in the loss of his job. In view of the multiple problems of this amputee and after much thought we treated the situation in a manner that provided him with the option of wearing his prosthesis as a conventional below-knee limb or an ischial-weight-bearing limb. The conversion from one to the other could be accomplished in minutes.

It is our procedure when fabricating an ischial-weight-bearing below-knee prosthesis to make the socket large enough to permit full freedom of

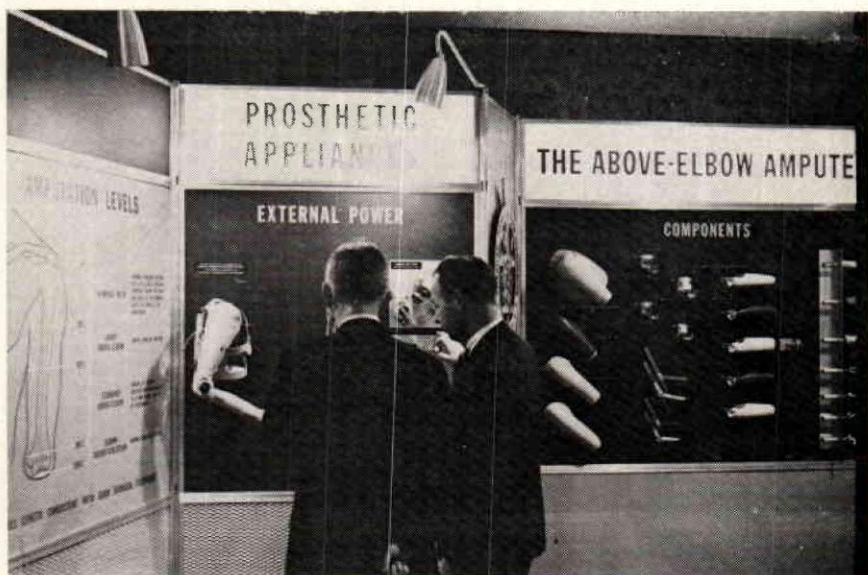
the stump which is used solely to flex and extend the prosthesis. Due to the ischial bearing, therefore, the stump is literally suspended within the socket which is positioned at least $\frac{1}{2}$ " lower than normal so that the stump does not make contact with the proximal socket brim. In view of the above technique we were able to convert the overly large socket of the ischial-weight-bearing prosthesis to a conventional below-knee socket by recasting the stump and fitting the resulting new socket within the existing over-sized socket. The design of this new socket included a built up shoulder which conformed to the proximal brim of the larger socket thereby keeping this new removable insert socket suspended at the proper level for a conventional fit.

We removed the ischial-weight-bearing corset and upper joint sections as a single unit. A standard thigh corset with matching upper joint sections was fabricated and installed. This completed the conversion of the ischial-weight-bearing below-knee prosthesis to a conventional below-knee prosthesis with a standard thigh corset.

It is now obvious, surely, that if this amputee's stump should show signs of deteriorating that the conversion back to the ischial-weight-bearing prosthesis would be a simple task and take only a matter of minutes to accomplish. In certain instances the amputee could be instructed in the exchanging of the corsets and joints. The removal or replacement of the insert socket would present no problem.

This technique should be of real value to the comparatively small group of amputees who continually have intermittent stump breakdown. They could change back and forth as circumstances dictated.

AT ACADEMY OF ORTHOPAEDIC SURGEONS MEETING



CERTIFICATION EXHIBIT IN NEW YORK—This display of prosthetic appliances for the above-elbow amputee was shown at the meeting of the American Academy of Orthopaedic Surgeons in New York City, January 9 to 14. The Exhibit Committee was composed of Jack Gold, C.P., Chairman; George Scoville, C.P.; and Walter Pavelchek, C.P., all AOPA members. Devices exhibited were donated by the D. W. Dorrance Company, A. J. Hosmer Company, Sierra Engineering Company, Prosthetic Services of San Francisco and the D. B. Becker Company and by the American Institute of Prosthetic Research and the VA Prosthetics Center.