

show other credentials, no members must sponsor you, and there is no need to have a minimum number of continuing education credits to keep your membership. Perhaps membership is too easy, perhaps not. What time will tell is how many AAOP members actively work at self-improvement by participating in the continuing education programs, local chapter activities, making presentations, writing articles, etc.

My personal feeling is that the voluntary aspect of self-improvement is not working as well as it should be. Complacency is more common than involvement. Last year only one-third of AAOP members qualified for fifteen hours of continuing education credits and, more significantly, only *thirty-eight* members qualified for the three year Continuing Education Award. I am sure many more orthotists and prosthetists accrued enough continuing education hours to qualify, but did not make the extra effort of documenting these hours for credit.

Should something extra be required of AAOP members to maintain their membership, such as a minimum number of continuing education hours? I think so, but not until there are means to make this education available to practitioners in small, rural communities as well as large metropolitan areas. Slide presentations, films, videotapes, instruction manuals, cassette recordings, etc., can easily and inexpensively bring education anywhere. A directory of available Audio-visual material will be prepared by the AAOP in the near future.

Until alternative methods of education become widely available, we must voluntarily work harder to improve our patient treatment techniques.

The American Academy of Orthotists and Prosthetists should not represent the elite, but should represent the best. Being the best does not come easy, just

by paying dues. It does come with a personal desire to improve yourself; I hope many more Academy members will show that desire in the future. To those many individuals who have actively taken advantage of continuing education programs, I thank you for being the backbone of your profession and setting an example that many more of us should follow.

Today's world sees many socialistic programs being initiated in a capitalistic society; this merger of philosophies does not usually work with fiscal or logistical efficiency. Government agencies and programs with overlapping responsibilities and sometimes contradictory regulations can easily threaten our livelihood. The Department of Health, Education and Welfare favors certification of health providers; the Federal Trade Commission thinks certification fosters restriction of trade. The Food and Drug Administration wishes to regulate all medical devices, thereby raising costs, while the President is setting price controls. In these times, only a strong dedicated association can afford to educate each branch of the government as to our needs, and influence legislation to benefit our patients and ourselves.

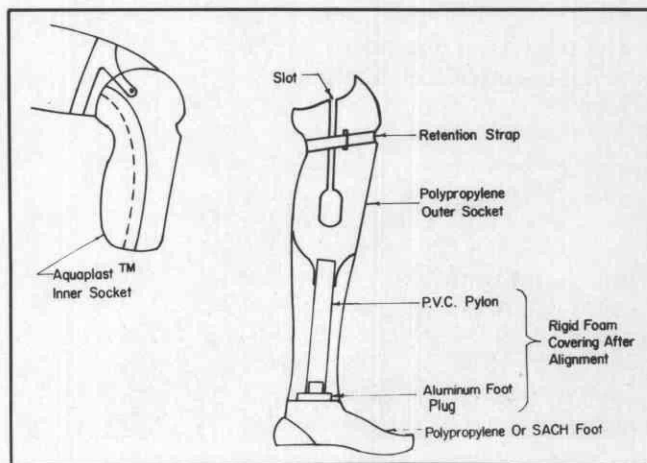
A handful of individuals volunteer many weeks of their time, at great personal sacrifice, each year to represent this profession. The added strain on those who volunteer to help can only be appreciated if you have been through it yourself. I wish to thank all of those individuals, whether in AOPA, ABC, AAOP, or on their own, who gave freely of their time (and time is all we have) to advance the profession to its present status, and encourage others to actively participate and be instrumental in shaping the future of the profession of orthotics and prosthetics.

## An Adjustable Preparatory Prosthesis for Recent Below-Knee Amputations<sup>1</sup>

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Management of the below-knee (B/K) amputee is one of the largest areas of limb prosthetics. It is also one of the areas where prostheses are the most successful. It is our opinion that early management of B/K amputees can be improved and made less costly through the use of an appropriate preparatory prosthesis.

The goal was to develop a preparatory prosthesis for B/K amputees which would have a socket that may be changed in size as the limb shrinks. Presently, many new prostheses must be made over or lined extensively because of residual limb volume change. Much of this volume change occurs on the posterior and distal aspect of recently amputated limbs. The preparatory prosthesis designed to meet these needs consists of a low temperature thermoplastic interface, an outer polypropylene socket, a polyvinylchloride (P.V.C.) pylon and a SACH foot (Fig. 1). The interface keys



Line drawing of the preparatory B/K prosthesis.

into the outer socket, and this fit remains relatively intimate because the volume changes are mostly restricted to one area of the socket.

Aquaplast<sup>®</sup> is used for the removable interface because it can be formed directly to the amputee's limb or to a modified cast (Fig. 2). The inherent memory of the material can be utilized to reduce the volume of the socket. During the forming procedure, the posteriodistal aspect of the interface is stretched to reduce its thickness. When this area is later reheated,



Amputee wearing Aquaplast<sup>®</sup> interface.

it will tend to return to its original thickness, thus reducing the interface's volume.

The outer polypropylene socket is vacuum-formed, either directly over the Aquaplast interface or over a plaster model of the interface. Attachment of the P.V.C. pylon is made by means of a polypropylene extension (1,2). A short length of P.V.C. pipe is temporarily attached to the interface or model in static alignment. Thus, when the socket is vacuum formed and the P.V.C. removed, the extension becomes an internal part of the socket. Ice-water quenching (3) of the polypropylene for one minute is recommended because the material is flexed extensively during insertion and removal of the interface (Fig. 3).

Polyvinylchloride (P.V.C.) pipe-schedule 40, 1 1/4"—is used for the pylon, so alignment changes can be made as the amputee progresses from simple weight

shifting to full ambulation (Fig. 4). Alignment changes are made by locally applying heat to the pylon (4). Initially, a hose clamp is used to maintain pylon attachment to the socket. Once basic alignment is achieved, this attachment is reinforced with either "pop rivets" or sheet metal screws. Attachment of the pylon and foot is made with a standard aluminum foot plug. The distal end of the pylon is chamfered internally, heated until softened, then forced over the foot plug. A hose clamp may be used to secure the pylon and plug, although this is not always necessary.

After the amputee has progressed to ambulation outside parallel bars, a rigid polyurethane foam is used to cover the pylon. All major alignment changes should have occurred by this time. Although the shaped foam improves the cosmetic appearance of the prosthesis, its main function is to reinforce the pylon and protect the amputee from a mechanical failure.

In the normal course of rehabilitation, an amputee's limb volume will decrease as ambulation increases. This decrease is usually accommodated by the addition of prosthetic socks and maintained at night by either elastic bandages or "shrinker" socks. Because the Aquaplast interface can be separated from the prosthesis, it may be used independently to accommodate the volume decrease and worn separately at night to maintain limb volume. When the amputee

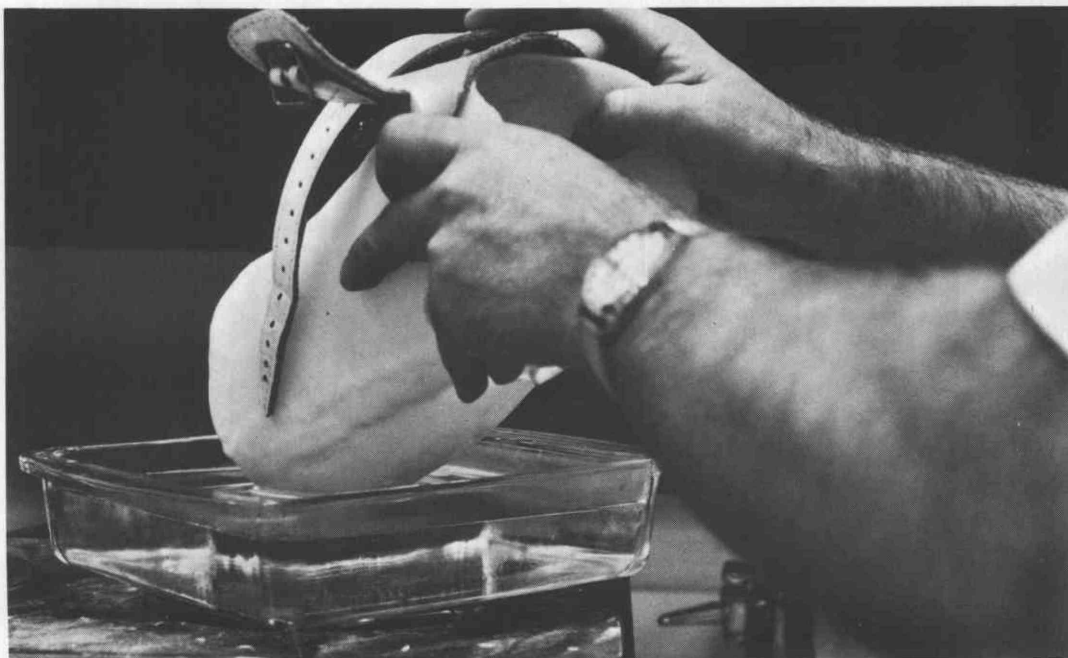


Amputee removing the interface from the outer polypropylene socket



Training of the amputee is completed before the prosthesis is foamed.

has progressed to a 15-ply sock, the posterior distal aspect of the interface is reheated (Fig. 5). The interface's volume will decrease because of the material's memory. This procedure is continued until the am-



Posterior-distal aspect of the aquaplast is reheated to reduce internal volume of interface.

putee's limb volume remains constant during one month of ambulation. At that time, the amputee is ready for the definitive prosthesis.

The fitting of nine individuals during its development has shown that the use of this type of preparatory prosthesis is effective in management of below-knee amputees with recent amputations. The cost in time and money for the preparatory prosthesis would be considerably less than the cost of a definitive prosthesis, extensive liners and adjustments, and possible new sockets within one year's time. Our experience indicates that upon completion of preparatory prosthesis use, the amputee's limb is "well seasoned" and ready for a definitive prosthesis which should last for several years.

#### Footnotes

1. This work supported by V.A. Contract No. V101 (134)-P326 and presented at the 1978 AOPA National Assembly, San Diego, California, Nov. 3, 1978.
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3. Available from WFR Corporation, 68 Birch St., Ramszy, New Jersey 07446.

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