

## *Technical Note:*

# Elastic Suspension Sleeve for Below the Knee Prostheses

Jon P. Leimkuehler, C.P.O.

A system involving an elastic knee support to suspend a below the knee prosthesis has been in use, for selected patients, in our facility for more than eighteen months (Fig. 1). The idea originated as an alternative to the latex suspension sleeve, and although it is used in a manner similar to the latter, it has many advantages over the sleeve.

An elastic knee support such as Bell Horn Model 120 (Fig. 2) or any other comparable support may be used. Although supports are available in sizes small to large, small and medium are most often used.

The sleeve may be the only means of suspension on a PTB or may be worn over a cuff strap for added effectiveness. For a PTB SCSP in which a fleshy thigh prevents good suspension, this sleeve may enable the prosthesis to function without additional straps or a belt.

The elastic suspension sleeve cannot always replace a cuff strap and belt or a latex sleeve and is effective only for selected patients. In some who are not good candidates, there is pistoning or sliding up and down. The sleeve is not recommended for a new amputee who will shrink a great deal or for the young active amputee.



Fig. 1. Elastic knee support suspending a PTB below knee prosthesis.

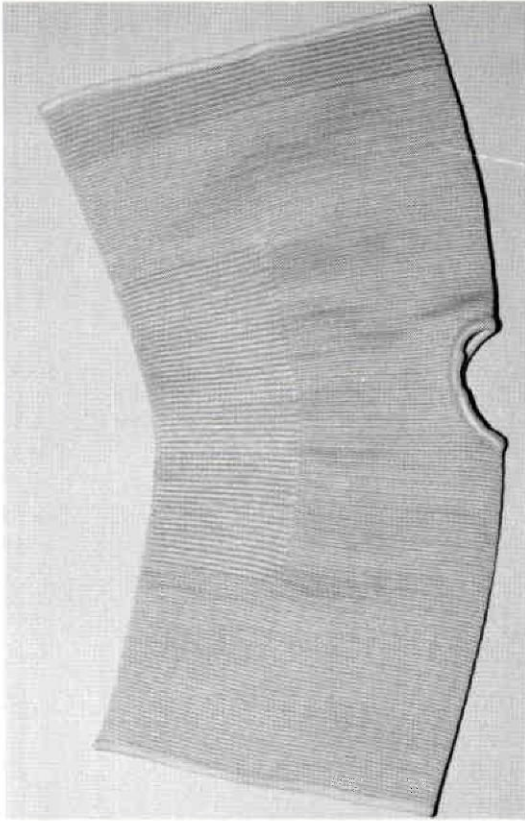


Fig. 2. Bell Horn model 120 knee support.



Fig. 4. Amputee sitting with knee flexed at 90°. Note the smooth appearance as compared to the conventional cuff strap.



Fig. 3. Pulling on the elastic suspension sleeve.

The elastic sleeve works well on a very light weight prosthesis where the suspension demands are not as great and when the amputee is stable in size. It is especially indicated for the amputee who is thin and less active.

The chief advantage over a latex suspension sleeve is that it is easier to pull up over the knee (Fig. 3). Also, due to its porosity, perspiration is not a problem, as frequently occurs with the use of the latex sleeve. These are important factors, particularly for the geriatric amputee. The sleeve is comfortable with the knee flexed and provides a smoother appearance than the cuff (Fig. 4).

I frequently give the patient a choice of suspension system. In the alignment fitting, the prosthesis is worn with a cuff strap and belt and then with the elastic suspension sleeve and sometimes the latex sleeve. In this way the amputee can compare the systems and decide which works best.

## CONCLUSION

The elastic suspension sleeve is inexpensive, easy to use and does not present a perspiration problem. As in the use of other suspension designs, patients must be carefully selected.

Jon Leimkuehler is Secretary/Treasurer of Leimkuehler, Inc. in Cleveland, Ohio.