

PROSTHETIC SHEATHS

The Prosthetic Sheath per se is not new. For many years it has been the practice of some amputees to wear a lady's silk or nylon stocking over their stump leg, and it has not been uncommon for prosthetists to recommend this practice. However, it is only within recent years that this type of hosiery has been knitted and sized especially for use by amputees. The DAW Prosthetic Sheath was first introduced in the United States in the 1960s, but it was not until the late 1960s and early 1970s that prosthetic sheaths began to gain in popularity, along with increased interest within the prosthetics community.

Information on the function and advantages of the prosthetic sheaths is rather limited and subjective. This information is basically in the form of comments and testimonials from a limited number of amputees who have worn the sheath. There have been some who found no particular advantage, and there have been some who have stated that their comfort in wearing their prosthesis with the prosthetic sheath and prosthetic socks has been markedly increased. Generally, the benefits of wearing a sheath seem to be more for below-knee amputees than for above-knee amputees.

Apparently the sheath performs one, two, or all of three basic functions:

- Reduces friction on the stump
- Provides a perspiration barrier
- Serves as a "filler" sock

The sheath is most commonly worn next to the stump under the stump socks. When worn in this manner, the sheath tends to protect the stump against friction by absorbing any movement between the sheath and stump sock. It will also provide a perspiration barrier. The sheaths are knitted of nonabsorbent synthetic material such as stretch nylon and/or polyamid fibers. This allows the perspiration to pass through the sheath and be absorbed by the stump socks, thus giving the amputee a greater feeling of dryness.

When used as a filler the sheath is sometimes worn next to the stump; sometimes worn over the prosthetic socks; and on occasion an amputee will wear two sheaths, one next to the stump and one over the sock.

Some of the testimonial-type comments from amputees run as follows:

"My first experience in wearing a prosthetic sheath was during the hot summer months. Frequently I have to wear two sets of stump socks changing midday due to excessive perspiration. I found that when I wore the sheath, that I most often could wear my socks the full day without having to make a change. I did not seem to perspire near as much."

"With any activity at all, my stump often became rather sore and sensitive. This is especially true in hot weather. I find that by wearing the sheath my stump is much less sore."

"I have been a BK amputee for many years and have always had problems of comfort and soreness. Since I started wearing the sheath, one next to my stump and one over my stump socks, I have known much greater comfort and far less soreness when active."

The Veterans Administration reports that amputee beneficiaries are requested to return a statement of effectiveness:

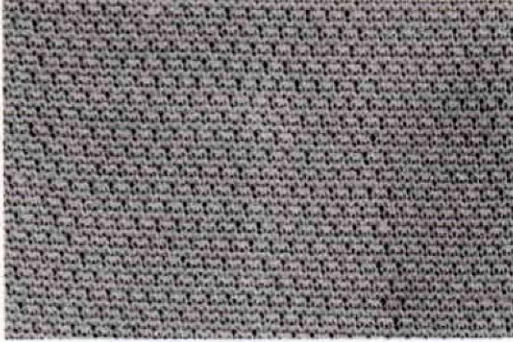
"From these statements, it appears that those with stump problems such as excessive perspiration, stump sores, or abrasion caused by friction, find the Sheath Sock to be beneficial in about 60% of the cases. The other 40% have noticed no particular improvement.

For those veterans who had no stump problems, very few continued to request them after the initial issue. We also found the benefits for AK amputees were minimal.

From the reports received, it would appear that the Sheath Sock will wear longer than the regular cotton or wool sock providing they are properly cared for.

To summarize, the Sheath Socks appear to be most beneficial in those cases of excessive perspiration for the very active wearers. Some advantages for those bothered by stump sores or abrasion caused by the so-called piston action between the regular sock and the prosthesis."

There are only two brands of prosthetic sheaths known to us that are presently available. The DAW SHEATH is imported from France by Otto Bock Orthopedic Industry, Inc. It is white in color and knitted from nonstretch polyamid fibers utilizing a special open mesh weave.



Weave structure of the Daw nylon sheath.

The KNIT-RITE PROSTHETIC SHEATH is a beige color and knitted from "stretch" nylon with comparatively close stitches. Each of the brands has its own features. DAW emphasizes the open weave and better ventilation; KNIT-RITE emphasizes the comfort and fitting quali-

ties of the "stretch" nylon fibers. Both manufacturers emphasize that the sheath and prosthetic sock(s) complement each other as a system to provide greater comfort.

Thus it would seem there are certain indications, perhaps some contraindications, for the use of the sheath. It seems that this could be helpful to amputees who have problems during hot weather; to amputees who have soreness when they become more active; to amputees who have excessive scar tissue; to amputees who want to wear a thin filler-type sock. Amputees who found no particular advantage to the prosthetic sheaths generally have little in the way of problems on comfort and soreness. Above-knee amputees seem to find fewer advantages using the sheaths than below-knee amputees.

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