

Temporary Protheses

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There have been substantial changes in the amputee rehabilitation program during the last twenty years. Some of these changes are the result of prosthetics research and educational programs sponsored by the United States Government, but to a great extent they are brought about by the type of patients presented in amputee clinics today. Twenty-five years ago the majority of amputees were in the younger age groups, with the amputation being the result of trauma, either from industrial or vehicular accidents. Amputations today, however, are performed to an ever greater degree to overcome the consequences of impaired circulation.

What is considered a standard prosthesis today is not necessarily indicated for this group of amputees, because prescription requirements vary considerably from patient to patient. Following long hospitalization, the patient may be debilitated. The stump may be edematous or painful. Motivation may be impaired. It is therefore essential that the physician has the choice of prescription. All former criteria which determined the type of limb indicated are no longer valid for this type of patient. If a standard prosthesis is prescribed for such a patient, he may never be able to utilize its full potentials.

For this reason it is quite often necessary to provide a temporary prosthesis which may serve as a diagnostic tool in order to establish the feasibility of providing a permanent limb. Although such a temporary prosthesis need not have all the features of a permanent limb, it must be anatomically and biomechanically correct, which means that a socket has to be formed in a manner to properly accommodate all tissues of the stump. Weight must be distributed over pressure-tolerant areas, and all sensitive areas must be carefully avoided. Good alignment is essential. Alignment could be defined as the proper relationship of the component parts of the prosthesis to the body.

Any other type of prosthesis will not only be useless as a diagnostic tool but will probably do damage not only to the patient's stump but will also be detrimental to the patient's motivation and ability to attempt ambulation training.

Many so-called pylons as seen today consist of nothing but a negative plaster of Paris cast to which either part of a crutch or part of a brace is attached. If the negative cast is correctly formed such a pylon may be used to induce stump shrinkage by tissue compression. It might also be indicated where the procurement of a prosthesis would be delayed but, for medical reasons, it is essential to have the patient assume a standing position. Most prefabricated pylons are contra-indicated because stump conditions and alignment vary from patient to patient and can rarely be accommodated for in any pre-manufactured device.

Temporary prostheses have to be constructed to the individual patient's needs. A correctly modified socket is the basis for any temporary prosthesis for a below-knee amputation. If a stump is sufficiently atrophied to permit predominant weight-bearing over the patellar tendon and the slope of the tibial condyles, it may not be necessary to provide side joints and a thigh lacer. A supracondylar strap will, in many cases, be sufficient to suspend the prosthesis.

If a below-knee stump cannot tolerate weight-bearing shortly after surgery, a temporary leg might still be indicated, even if only to preserve the function of the remaining leg. In those cases, most of the weight is transferred to the thigh. The leg might even have to be provided with combination ischial gluteal bearing. Such a construction would benefit from a simple knee-locking device.

It has become more and more the practice to ambulate patients very early. Although the stump volume should be reduced by means of an elastic bandage or a stump shrinking sock, it has been found that weight-bearing on a prosthesis as soon after amputation as possible will offer many advantages. It will not only improve the stump tissues, but will also be helpful on an emotional basis.

It is, of course, necessary to adjust for changes in stump volume almost weekly in order to maintain a good fit. In the early stages of shrinkage it may be sufficient to add liners or paddings in the areas of shrinkage. This, however, is only a temporary procedure. The construction of a complete new socket often becomes necessary after a short time. If the socket has been constructed from relatively inexpensive materials, the cost of replacements can be kept to a minimum.

It is seldom indicated to provide a temporary prosthesis with a crutch tip such as is seen sometimes. A crutch tip will rarely allow the patient to transfer his weight properly since the area of contact with the floor is very small. A desirable heel-toe motion of the ankle cannot be achieved without

