

Orthopedic-Prosthetic Idea Exchange

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The rehabilitation of amputees has gained considerable impetus as a result of constant improvement in available prostheses. The most recent research attention has been given to the below-knee prosthesis, now that problems involving more difficult amputations for which suitable prostheses were least developed have been solved. These included principally the upper extremity and the above-knee amputations. The laminated plastic arms with light weight components and mechanically improved methods of harnessing have definitely increased the number of users of upper extremity prostheses and the suction socket has long been accepted by suitable above-knee amputees and is now a standard item of issue.

Now we have the latest device, the so-called "UBC Below-Knee Leg" which will most likely become commercially available during this coming year. This prosthesis, developed at the University of California at Berkeley, is a closed end, soft socket which makes total contact with the below-knee stump with pressure points about the entire stump and also over the patellar tendon as well as end bearing. The socket is suspended by a simple thigh strap just above the knee without a thigh corset and without knee joints. It is fitted within a plastic laminated shin attached to a SACH foot. The fabrication and prescription of this corset is now being taught in courses being held at New York, Chicago, and Los Angeles, designed for prosthetists, physical therapists, and physicians. Although not officially approved by the Veteran's Administration as yet, it can be ordered on a non-contract basis, provided there is a prosthetist available who has completed the prescribed course. Your editor has completed the course at New York University and was very much impressed with what he saw there, and has already prescribed three such prostheses. However, we have not as yet gained sufficient clinical experience to give any progress reports or observations but we promise a preliminary report in our next issue.

The new patellar tendon bearing, cuff suspension appliance is not to be confused with the old Muley limb which has an open end socket of wood construction without a soft liner, and is not carefully fitted with total contact as with the newer prosthesis.

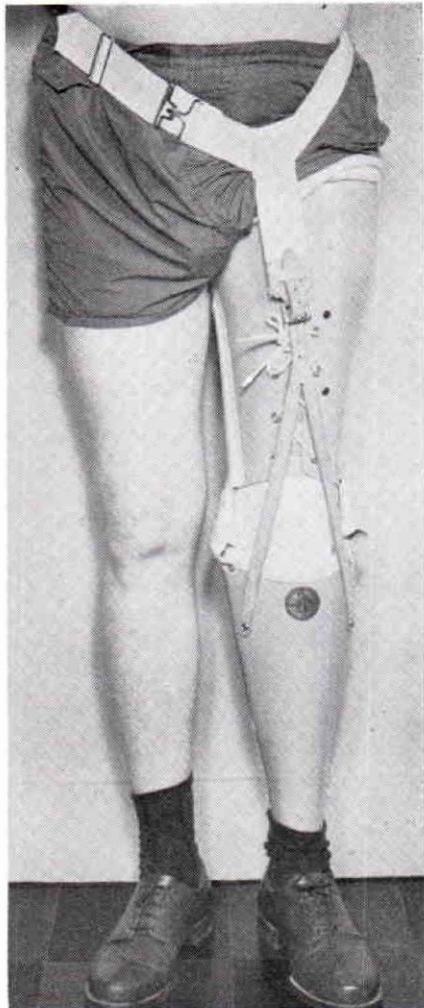
Dr. Edward Holscher of St. Louis will soon distribute a carefully prepared questionnaire to all V. A. Field Stations and other amputee centers to collect information regarding hip disarticulation prostheses. This survey represents several years of careful planning and it is hoped that everyone will offer him the utmost in cooperation, as this is a field of prosthetics in which clinical information is lacking because of the scarcity of such amputees in any one center. In our own clinic we have found that in some cases the Canadian type hip disarticulation prosthesis may be modified by changing the elastic strap from the position below the knee to mid-thigh and also displacing it posteriorly on the hip, which aids in the stride and particularly facilitates getting in and out of automobiles and sitting.

One little item that we have noted used here and there which may be old news to the veteran prosthetist is the insertion of the suction socket valve in the socket at an angle instead of flat or perpendicular to facilitate removal of the stockinette used in applying the prosthesis to the stump. Such a simple modification may save considerable exertion on the part of some amputees and thereby improve their tolerance of this prosthesis, especially in the initial weeks of such use.

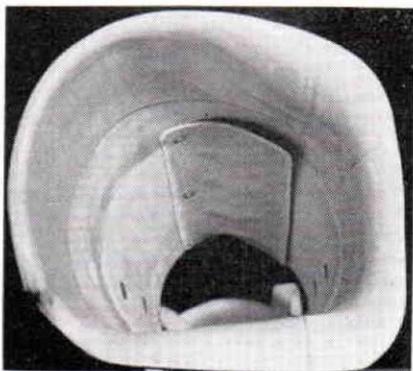
The SACH foot continues to be popularly used, particularly in the Washington area, with a great majority of satisfied users. Occasionally squeaking noises have been found to be due to loose belting, particularly noted after long periods of wear. The noise can easily be eliminated by repairing the defect. Amputees should be informed of this possibility and advised to return for necessary repair rather than tolerate the objectionable noise.

Plastic Corsets for L/E Prostheses

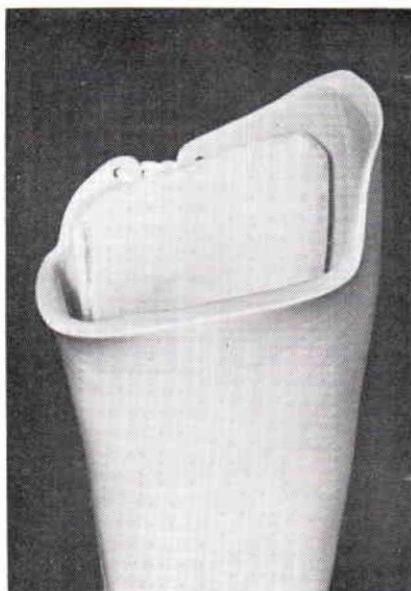
We have had a very interesting communication from Dr. H. J. Bugel, Chief of Physical Medicine, Rehabilitation Service at the Veteran's Administration Hospital in Nashville, Tenn., regarding the use of plastic corsets for lower extremity prostheses. Dr. Bugel writes, "We have been using a plastic corset with, and without, ischial seat with both full lacing and partial lacing, for approximately five years. Our experience has been very good. Appreciation expressed by the wearer has been excellent. No unusual problems have developed which would indicate the discontinuance of this corset. One wearer, after 18 months—up to 18 hours a day—of constant hard usage over rough ground as a farmer, hunting, and fishing, had a crack in his corset posteriorly but he wanted an identical replacement. Approximately 30 such corsets are in use at the present time."



a. Ischial weight bearing below-knee prosthesis with partial lacing of thigh corset, molded plastic, (Constructed by courtesy of J. E. Dillard of Hanger Limb Company, Nashville, Tennessee.)



b. Wood quadrilateral pattern inlay in prosthesis (a).



c. Molded plastic thigh corset for a below-knee prosthesis, fully laced, ischial weight bearing. (Constructed by courtesy of Snell Artificial Limb Company, Nashville Tennessee).

“More recently, for special problems in those patients amputated for peripheral vascular disease, where no weight bearing is desired on the stump, a quadrilateral socket, fabricated from wood has been incorporated into the plastic corset, comparable to quadrilateral socket fitting principles. In the three instances in which this type of corset has been used, success has been very good.” The photographs demonstrate the points made by Dr. Bugel.

New York University has announced the first four year curriculum leading to a degree of Bachelor of Science in the field of Prosthetics and Orthotics. This program is being offered by their school of Education and will begin in September, 1960. This certainly appears to be a fitting development of the growth of our field of endeavor and would especially be intended for those who wish to qualify for a position of leadership in Prosthetics and Orthotics. The program will combine the usual college curriculum with specialized courses in the field of upper and lower extremity prosthetics and orthotics, supplemented by a clinical training program. Our members are urged to stimulate interest in this program and to direct any interested young people to contact Dr. Sidney Fishman, Director of Prosthetics Education at New York University.

In the field of bracing, there is now being used a double Klenzak type of stirrup to provide spring loading for both plantar flexion and dorsiflexion of the foot in cases of severe paralysis, instead of the usual limited motion ankle joint. It is wondered whether this idea has been used generally, or whether some of our orthotists may have improved ideas regarding this particular problem. We would be interested in receiving your comments.

Children's prosthetics is receiving more widespread attention throughout the country. At the recent meeting of the American Academy of Orthopaedic Surgeons in Chicago, there were excellent exhibits on children's prosthetics, one by the Duke University Group which has been doing notable work in this field and has been successfully fitting very young amputees.

Since the above was written we have received a very interesting and thoughtful letter from William A. Tosberg, C.O. & P. Mr. Tosberg is Technical Director of Prosthetics Research and Services at the Institute of Physical Medicine and Rehabilitation in New York City.

He writes as follows: "In the December 1959 issue of the *Orthopedic and Prosthetic Appliance Journal* there is a column entitled "Orthopedic-Prosthetic Idea Exchange." All of the items are very interesting.

"We have just obtained a good supply of 2% Prantal dusting powder which we are using on an experimental basis, with the idea of supplying the Schering Corporation, Bloomfield, New Jersey, with the results obtained by our amputees.

"Another item of particular interest to us was the observations on biceps cineplasties. I suppose the general observations are valid but where it says, 'we have yet to find a single cineplastic amputee who continued with the use of his cineplastic prosthesis for more than a few weeks or months,' that does not apply to the cases where our physicians have performed cineplastic operations or where we have provided prostheses. As a matter of fact, the biggest problem we have with one of our amputees is the fact that we are unable to provide him with cables strong enough to last longer than about two or three months. This man was a furniture mover but has now gone over to automobile repairs. There are three other people I can think of at this moment who are using their biceps cineplasty prostheses routinely. One of them was provided with a standard arm in addition to his arm provided with tunnel pin. Only last week he told me that he does prefer the use of his tunnel.

"I am not giving you these comments for the purpose of bragging, but only because comments have been asked for. (Editor's Note: Immediately after writing this last column our clinic had two biceps cineplasty amputees who were using their prostheses well—we prescribed a replacement prosthesis for them!)

"The paragraph concerning follow-up service on above-elbow wearers appears to be extremely valid, because I know from past experience that prostheses for this level of amputation have been discarded by many amputees since the functional return is at best very limited. This consideration was one of our reasons at the Institute for following up children either through a letter or, if this showed no results, by means of a visit by a social worker.

"We have contacted adults every six months in the beginning, and only if we found that they were regular arm wearers did we get in touch with them at least once a year thereafter. Through these means we have prevented the waste of time and money which would be involved if a prosthesis were discarded before it was tried thoroughly.

"I hope that this column has given as much stimulus to thought in others as it has given me.—WILLIAM A. TOSBERG

Your editor is extremely gratified to receive Mr. Tosberg's comments. They are just what we like to hear: your opinions, whether they agree or disagree. So that everyone can benefit from the dissemination of prosthetic knowledge, let's hear from you too!

Everett J. Gordon, M.D.