

REPORTED ABROAD^a

PROSTHESIS TIBIALIS WITH ENCLOSURE ABOVE THE CONDYLES "PTS PROSTHESIS"^b

Rudolph Thys

Director, Orthopedic Workshop
Children's Orthopedic Hospital, Infantile Paralysis Foundation
Caracas, Venezuela

I became acquainted with the Prosthesis Tibialis at the United Nations International Seminar on Prosthetics for the Handicapped in Copenhagen, 1964. The prosthesis was described and demonstrated by Mr. Guy Fajal of Nancy, France. Some of the seminar participants had an opportunity to produce this prosthesis themselves at the seminar.

This type of prosthesis (PTS) differs from the PTB prosthesis as follows:

The socket of the *PTB* prosthesis ends level with the knee joint. A cuff above the knee joint is connected to the prosthesis and holds the prosthesis securely. With this prosthesis, the maximum pressure is on the patellar tendon.

The socket of the *PTS* prosthesis completely encloses the knee joint frontally and on both sides. The anterior socket margin is above the patella and is in contact with the quadriceps tendon; thus, a cuff is not needed.

I was so impressed with the construction of the PTS prosthesis that upon my return to Venezuela, I switched to the production of this kind of prosthesis.

We have produced the PTS prosthesis in our Prosthetic Workshop for more than a year. Amputees previously using a PTB or conventional prosthesis were henceforth issued the PTS type. All new prosthesis wearers were prescribed the PTS prosthesis. After one year's experience, I do not consider this type of prosthesis experimental. It is understood, however, that each case demands individual attention.

^aBased chiefly on translations by Dr. Gabriel Rosenkranz, Medical Consultant to the VA Prosthetics Center.

^bReprinted and translated from the December 1965 issue of *Orthopadie-Technik* with the permission of the author and the publisher.

The key to successful construction of the PTS prosthesis is a good plaster model. It is important that the negative mold be modeled with the utmost care. The negative is made with the same technique that Dr. Kuhn of Münster, Germany, uses in making his below-elbow prosthesis.

The casting technique is presented with clarity and precision in an Atlas of the PTS by Guy Fajal, which is available in German and French.

The outstanding advantages of the PTS prostheses are as follows:

1. *Good contact between stump and socket.* The pseudoarthrosis between stump and socket is eliminated. The pressure difficulties which in some prostheses occur because of too large a socket are eliminated. The socket in the PTS construction is a conventional total-contact socket.

2. *Good knee safety.* The high lateral and medial socket margins beyond the condyles prevent instability of the knee.

3. *Normal knee flexion.* Normal knee flexion is chiefly obtained by means of incorporation of the socket above the patella. I have also discovered that fit of the prosthesis is largely dependent upon contact with the patella. In some cases, I increased the socket margin as contact just above the condyles was not always successful.

4. *Good cosmesis.* The shape and the simple contact over the knee joint were especially welcomed by young girls and women.

Every short, medium, or long stump can be fitted with his prosthesis. I have achieved my best success with short stumps. It is ideal for women and children.

In the fabrication of this prosthesis, the same materials are used as in the PTB prosthesis. For cosmesis, Pedilen foam is applied externally.

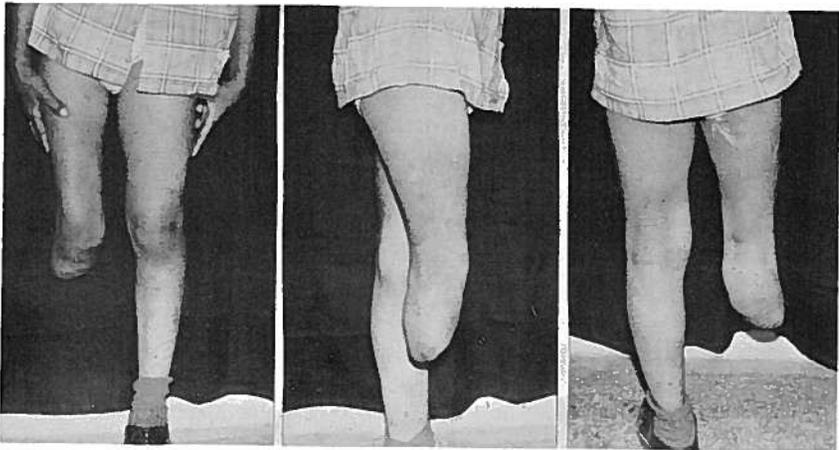


FIGURE 1. — Anterior, lateral, and posterior view of patient with a very poor stump.

Figures 1, 2, 3, 4, and 5 illustrate how this prosthesis accomplishes the best function for below-knee amputees without mechanical means.

In conclusion, I would like to add that I do not use a soft inner wall for very long stumps, except at the distal end. This measure simplifies keeping the prosthesis clean which is a problem in this area because of the prevailing climatic conditions.

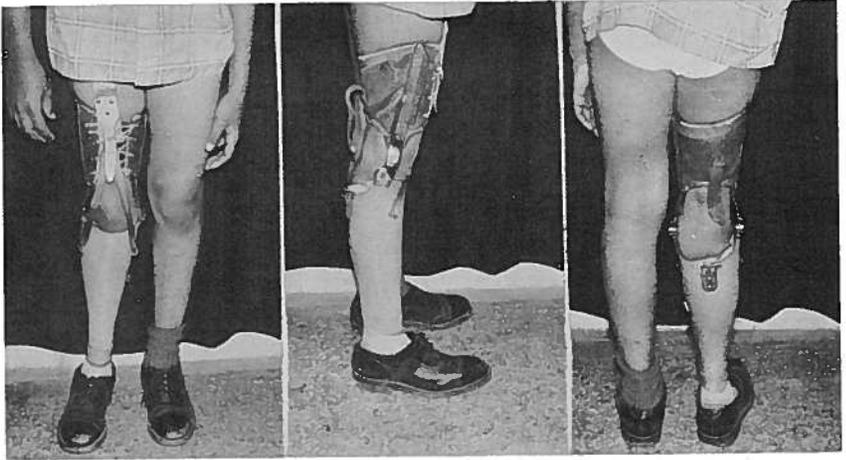


FIGURE 2.—Anterior, lateral, and posterior view of amputee with conventional prosthesis. Note the recurvation.

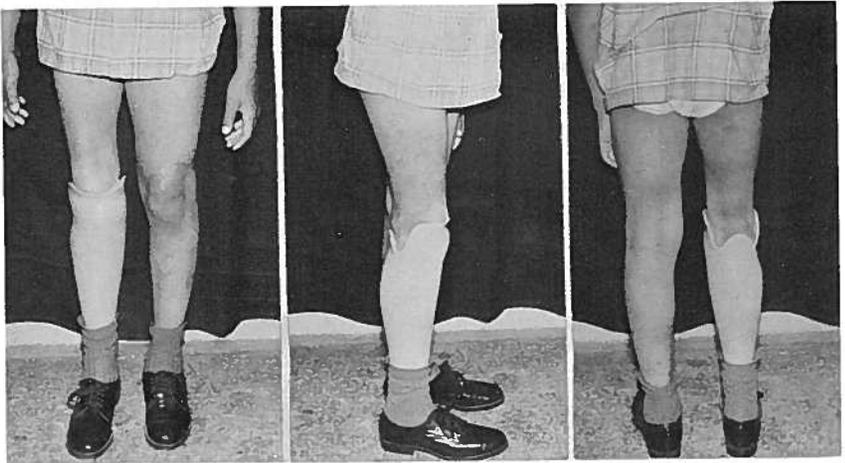


FIGURE 3.—Anterior and posterior views with PTS prosthesis shows extent of atrophy of the thigh. Lateral view shows normal knee flexion.

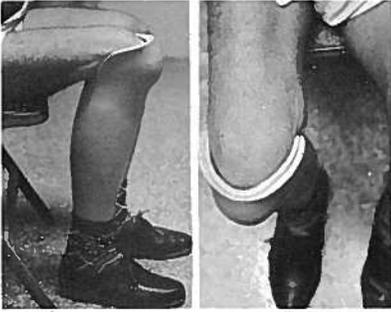


FIGURE 4.— Amputee in sitting position with PTS prosthesis demonstrating obtainable angle of flexion.

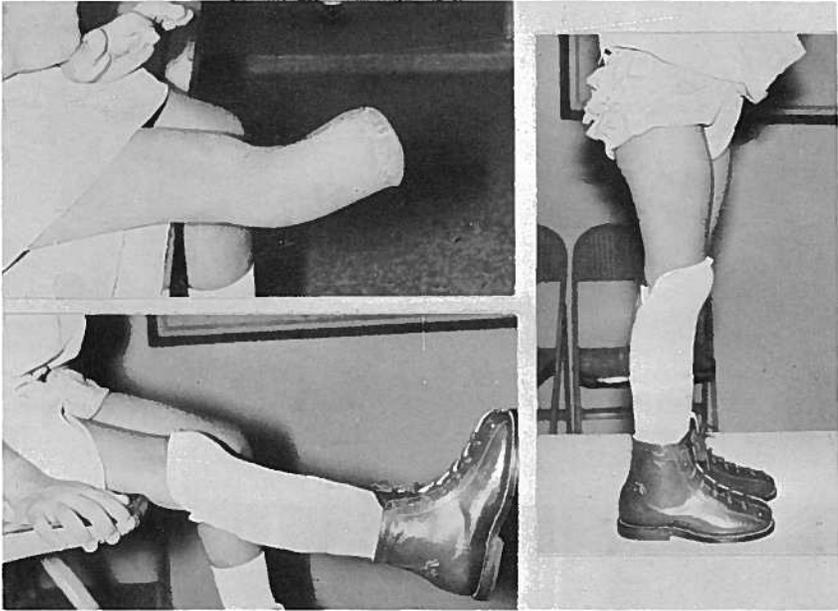


FIGURE 5.— Stump with marked recurvation (upper left), stump with PTS prosthesis applied (lower left), and lateral view of amputee with prosthesis in stance phase (right).