

ORTHOTIC DEVICES FOR PATIENTS WITH AN IMPAIRED LOWER LEG-FUNCTION

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- I. Impairment of the lower leg-function will often be caused by lesions of the central or peripheral motor neuron. When treating the impairment of the lower leg-function, owing to neurological pathology, the seriousness of the paresis and the degree of spasticity are important factors. These factors determine for the greater part the choice of the lower leg-orthosis, which has to be prescribed.

In practice the following combinations of seriousness of the paresis and the degree of spasticity occur frequently:

II

	m. tib. ant. m. ext. dig. m. ext. hall. mm. peronei with a <u>slight</u> <u>paresis</u>	m. tib. ant. m. ext. dig. m. ext. hall. mm. peronei with a <u>clear</u> <u>paresis or</u> <u>paralysis</u>
none or slight spasticity	I	II
obvious spasticity	III	IV

Each of these combinations will now be explained in a few words.

III I Slight paresis - none or slight spasticity.

Mostly there is only a slight dropfoot and/or an inclination to varus of the foot in case of fatigue of the light parietic musculature. The functional impediment is mostly slight.

If the slight impairment of function troubles the patient, then light weight orthoses such as braces, wires, splints can be considered for treatment in cases of peripheral and central motor neuron-diseases, or the peroneus stimulator this only in case of a central neuron disease.

The braces, wires and splints are standard products and light in weight. (Fig. 1a, 1b, 1c)

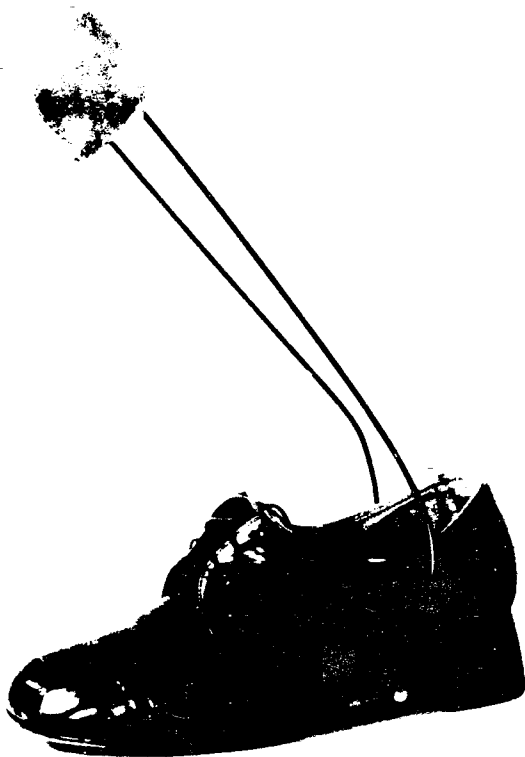


Fig.1b: Caroli-wire

IV II. Clear paresis or paralysis - none or slight spasticity.

The clinical picture is characterized by a clear dropfoot and/or varus-valgus instability of the ankle/foot.

When passive the dropfoot can be easily corrected.

In many cases the same orthotic devices can be applied as under I (standard braces, wires, splints and peroneus stimulator).

Patients, who walk much, need an ankle-foot orthosis provided with double bars and ankle-hinges with a plantar-stop or high orthopaedic shoes with an arthrodesis socket.

V III. Slight paresis - obvious spasticity.

When the knee is bent, there is the possibility of a normal active dorsal flexion of the foot and toes.

When the knee is stretched and when walking the spastic calf-musculature dominates most times.

The consequence is an equino-varus position of the affected foot during the swingphase.

First of all one ought to try by means of a phenolisation of the calf-musculature to reduce the degree of spasticity.

In case of a positive result the situation 'slight paresis - slight spasticity' arises.

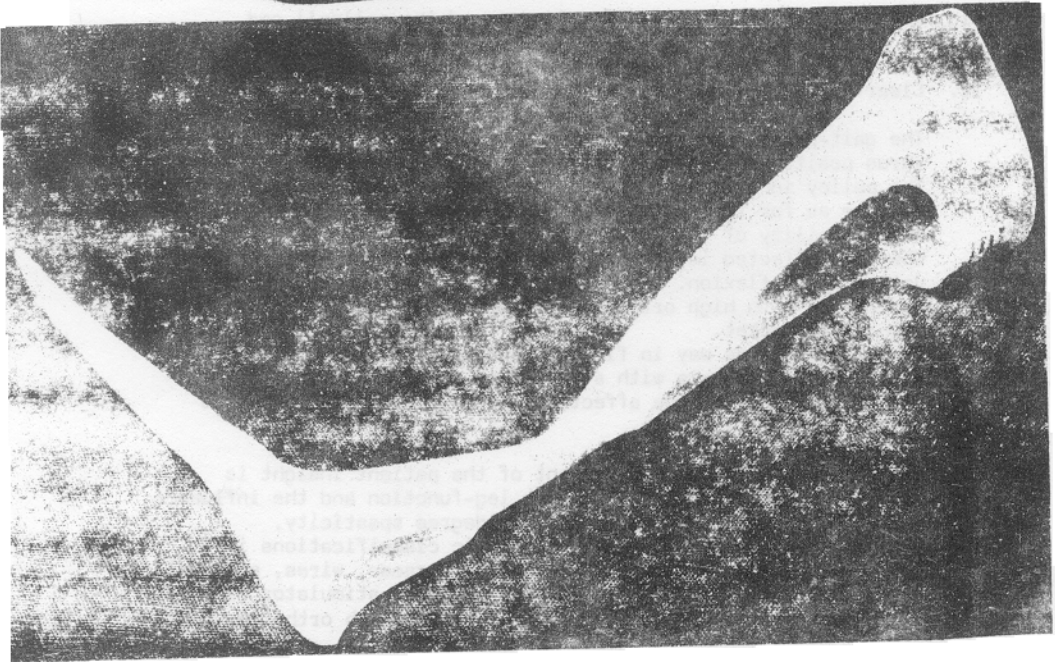
If it fails to reduce the spasticity significantly, there is an indication for high orthopaedic shoes with an arthrodesis socket.

Due to the fixation round the malleoli and the calcaneus the foot cannot drop and the varus-valgus instability is reduced. (Fig.2) If necessary an equinus position of the foot is accepted,



Fig.1a: -->
Orthosis with bars
and ankle-
hinges

Fig.1c:
synthetic splint.



devices present an appropriate correction of the impairment of the lower leg-function. If necessary the disturbing spastic musculature can be phenolised.



Fig. 3: Peroneus stimulator.

In case of a quick mobilisation of the patient to standing and walking a quickly supplied standard orthosis is mostly applied in the beginning. During the rest of the rehabilitation of the patient the definit choice of the ankle-foot orthosis is finally determined if the impairment of the lower leg-function persists.

VII

The choice of the ankle-foot orthosis is determined by:

- the degree of correction of the impairment of function
- subjective factors of the patient (e.g. the weight, the cosmetic