

AIDS AND APPLIANCES IN LEPROSY

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CLTRI.

- A common problem for people with chronic impairments due to leprosy, is experiencing severe difficulties with the normal activities of daily life
- Assistive devices can be used to prevent disabilities by protecting the user's body from new impairments and by facilitating activities and participation (i.e. execution of tasks and involvement in life situations).
- There are a wide range of assistive devices 'available to improve performance of the so called "community survival skills" or activities of daily living when there is a lasting impairment'.

ASSISTIVE DEVICES FOR FACILITATION OF HAND AND FOOT RELATED ACTIVITIES:

FACILITATION OF HAND-RELATED ACTIVITIES:

- Grip-aids (e.g. custom made Modulan grip-aids)
- Foam padding for combs, cutlery and pens to increase contact area and decrease pressure
- Scissors that open automatically
- Cutting boards which keeps things fixed in place
- Wrist cuff/straps with holder for e.g. pen, spoon or tool

- Velcro straps on shoes instead of buckles or lace
- Cloth-cutter
- Cane holder
- Knife and block combination for slitting hems

FACILITATION OF FOOT-RELATED ACTIVITIES:

- Braces
- Foot drop springs /straps
- Orthoses
- Prostheses
- Crutches
- Wheelchairs
- Sewing machine pedal spring

COMMON ADAPTIVE / ASSISTIVE DEVICE USED IN LEPROSY:

Adapted spoon :

Indication: Those with no grasp due to absorbed digits or complete paralysis of hand muscles

Brief description: Device is made of a spoon attached to an aluminum cuff to facilitate the retention of the spoon in the hand while eating. This device can be adopted for a toothbrush and a comb.



Built-up spoon :

Indication: Those with some grasp but inability to hold thin items such as a spoon or toothbrush during function movement

Brief description: Soft material is padded around the spoon handle to facilitate grip for those with poor hand grasp. The same modifications can be done for a toothbrush, pen, shaving razors, and comb.



Nail cutting device:

Indication: Those with deformities; clawed fingers and thumb paralysis

Brief description: Nail cutter is attached to stable base and cutter handle is broadened to facilitate easy cutting of nail.



Soap holder:

- Indication: Those with paralyzed fingers and thumb or absorbed digits with difficulty in grasp
- Brief description: Soap is fixed into an aluminum holder, which is attached to a stable cuff around the palm to facilitate the retention of the soap in the hand. This device is rarely used.



Button hook:

- Indication: Those with difficulty in fine motor activity due to paralysis and/or loss of sensation
- Brief description: A hook is fixed to a soft handle to facilitate buttoning, which is very challenging for those with thumb paralysis



Writing aid:

- Indication: Those with poor prehension (tripod) function with some pinch power.
- Brief description: A soft rubber grip slips onto a pen or pencil to facilitate grip while writing.



Grip aids:

- Indication: Those with absorbed digits with some grasp/ prehension function
- Brief description : Made of a special material that takes the shape of the contact surface of the fingers to facilitate easy grasp



Universal cuff:

- Indication: 1.Those with poor or no grasp due to absorbed digits or paralysis of muscles of the hand
2.Those without fingers or loss of grasp
- Brief description: This device consists of a nylon or leather cuff around the palm with a pocket to insert a spoon, toothbrush, comb, etc.



Zipper puller:

- Indication: Those with poor prehension function
- Brief description: This device consists of a hook with a ring at one end to facilitate pulling a zipper.



FOOT WEAR FOR ANESTHETIC FEET

- All feet which have lost sensation in the sole and have paralysis of the small muscles of the foot are in danger of getting ulcers.
- Therefore, the aim is to have these patients wearing some kind of protective footwear.

GENERAL PRINCIPLES:

MANUFACTURE:

Footwear for persons with anesthetic lower limbs in leprosy should be manufactured as per the following principles.

- **COVERING :** There should be a hard covering (tyre) to prevent injury from heat, sharp stones and thorns.
- **AVOIDANCE OF NAILS:** No nails or other sharp metallic staples should be used in construction of the footwear. Stitching or gluing of components is recommended.

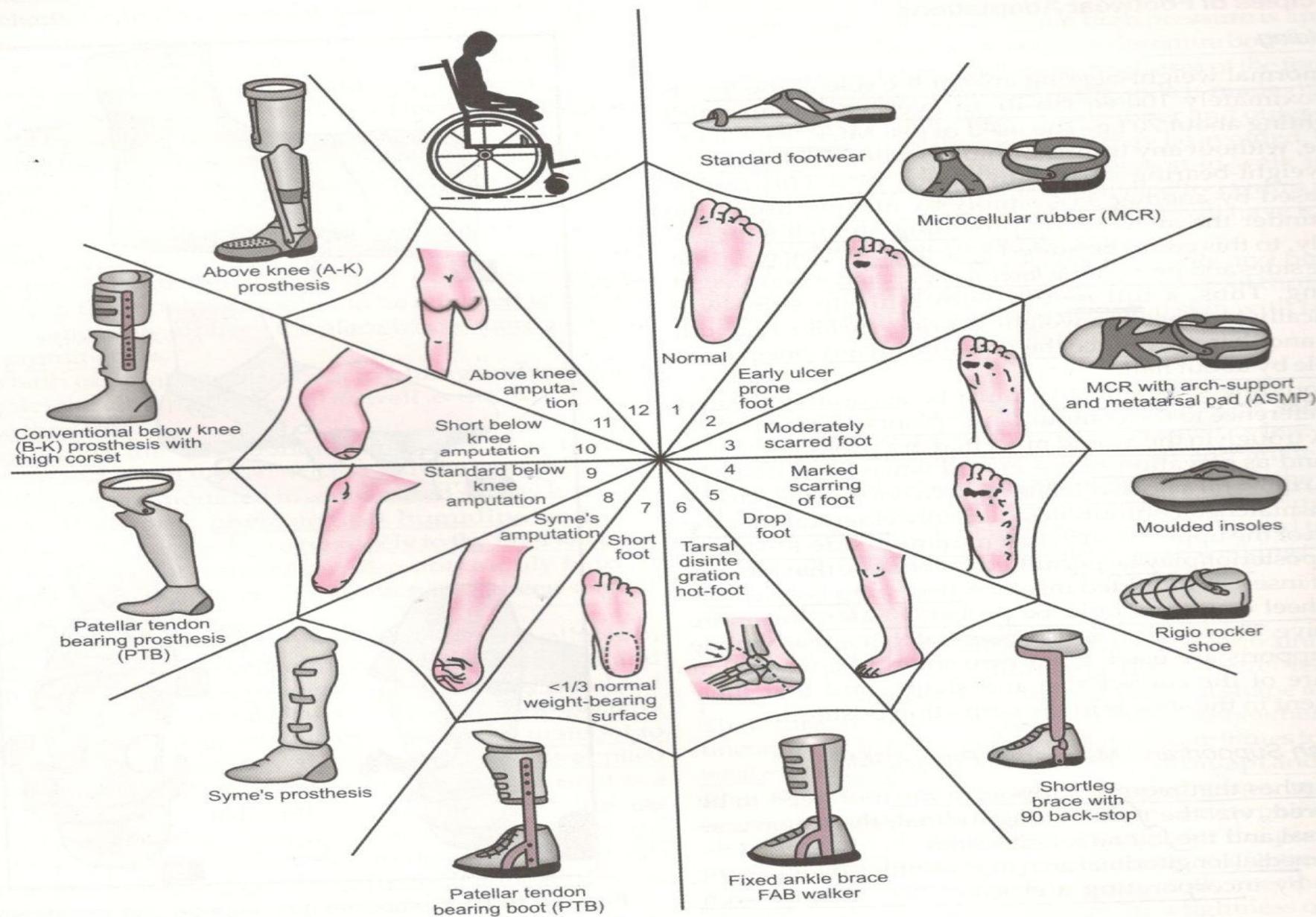
- **PADDING:** It will help if there is some amount of padding in the insole to lessen the effect of the muscular wasting, to give a soft surface for any hard bony projections , and also to compensate for the loss of fat under the scar of a previous ulcer.
- Padding is usually provided by a layer of soft rubber. The recommended material is Microcellular rubber. It is relatively cheap and readily available.
- Another material used is “plastazote”, but it is expensive and less durable than Microcellular Rubber. Rubber tends to perish when it comes in contact with oil, plastazote does not.

- **BACK STRAPS:** They help to get a good grip and avoid slipping of footwear as these patients have sensory loss of the sole
- **MOULDING OF INSOLE:** Moulded insoles, rigid rocker soles and certain other more complex footwear may become necessary for the more advanced type of deformed foot.
- **RIGIDITY:** It helps to protect the joints and bones of the foot .It reduces the shearing stress in floor - foot thrust and prevents undue stress between normal skin with fat and scar which is fixed to a bony prominence. It assists in reduction of pressure on the sole by distributing the weight over the entire foot.

- **STABILITY:** The footwear should be stable and high heels should be avoided
- **MOULDABLE UPPERS:** Plastic / Rubber footwear are contraindicated, because they do not mould to the patients feet after prolonged usage but retain their original shape and size. Leather should be used because it adopts and change shape to conform to patient's foot after continues usage.

PRESCRIPTION:

- The majority of patients will require only simple protective footwear.
- Patients who have scarred feet and those with deformities especially fixed deformities involving the ankle and foot joints will need more individualized footwear.
- These range from the "low – moulded" to the "high – moulded" and more sophisticated "special" custom made footwear.



PRESCRIPTION OF SUITABLE FOOTWEAR:

Type of patient/ foot condition

1. Nonanesthetic feet of leprosy patients
2. Anaesthetic but undeformed feet, or those with healed soft scars.
3. Minimally deformed feet with old ulcer scars
4. Badly deformed feet, those with hard scars or bony prominence or moderately shortened feet
5. For patients with foot drop
6. Instability of ankle & tarsal joints, early neuropathic feet or after arthrodesis at foot / tarsal level.
7. Badly deformed feet with less than 1/3rd of “good” weight bearing skin left on the foot: “rocker bottom” foot.
- 8-12. Amputations at various levels

Footwear recommended for use

- Any protective footwear will be useful in the long run.
- Microcellular rubber insole with back straps, no inserts necessary
- MCR insole, arch supports and metatarsal pad inserts, back strap or heel counter essential
- Moulded insole with a rigid rocker sole, normally fitted into sandal or orthopaedic boots
- Foot drop springs (either anterior or posterior) or a short-leg brace with a 90 degree posterior check stop
- Fixed ankle brace (FAB) shoes
- Patellar tendon bearing (PTB) shoe or orthopaedic device
- Prosthetic devices wherever suitable, wheelchair for final stages of rehabilitation.

THANK YOU

