

# DISARTICULATION PROSTHESIS

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- Individuals with knee and hip disarticulation wear prostheses that include the same distal components as prostheses for lower levels.
- Any prosthetic foot can be used with either an endoskeleton or exoskeleton shank. The major distinction, therefore, is in the proximal portion of the prostheses.

# Hip disarticulation prostheses

- Fitted to a person with amputation above the greater trochanter , removal of the femoral head from acetabulum, or removal of the femur and some portion of the pelvis (transfemoral amputation or hemipelvectomy).

- Prostheses for proximal levels share common hip, knee, and foot assemblies and alignment, but differ with regard to socket design.
- The endoskeletal thigh and shank predominate b/c they afford appreciable weight saving in these massive prostheses.

# SOCKET

- Plastic molded to provide weightbearing on the ipsilateral ischial tuberosity and buttocks.
- The person with transpelvic amputation who does not retain the ipsilateral tuberosity or iliac crest has a socket with a higher proximal trimline, sometimes encompassing the lower thorax.

# Hip Unit

- The jt have an extension aid to bias the prosthesis towards the stable neutral position.
- Positioning the mechanical hip ant to a point corresponding to the anatomical hip also contributes to hip stability.

- The joint is set below the normal hip, so that with sitting , the prosthetic thigh will not protrude unattractively.

# Knee Unit

- Several units are specifically manufactured for knee disarticulation. One may choose among hydraulic, pneumatic, and sliding friction unit, with or without polycentric linkage. Even with a special knee unit , thigh will be slightly longer. Consequently the shank is shortened equivalently, so that when pt stands, the pelvis is level.



# stability

- Several attributes combine ..... Stability
- Eg hip extension aid, ant placement of hip jt,
- Post placement of the knee unit & knee extension aid.
- Pros may be shortened slightly, primarily to aid clearance during swing phase, but also to encourage the wearer to apply maximum weight to the prosthesis and to increase stability.

Hip disarticulation pros with SACH foot, endoskeleton shank, single axis knee and extension aid , single ... and rigid socket





# Orthoses for burn management

- Splinting can be viewed as an extension of the positioning program. There are certain “antideformity” positions in which patient are generally splinted, the therapist need to examine the location of the burn and which movements are difficult for the patient to achieve

# General indications

- a) Prevention of contractures
- b) Maintenance of ROM achieved during an exercise session or surgical release
- c) Correction of contracture
- d) Protection of a joint or tendon

- Splint design should be kept simple so that a splint is easy to apply, remove, and clean.
- Usually worn at night, when pt is resting, or continuously for several days following skin grafting.
- Splints should conform to the body parts, and care must be taken to ensure that there are no pressure points that may cause a breakdown in healing or normal skin.

- Splints should be checked routinely for proper fit and revised if necessary.
- Splints are intended to serve as adjuncts to therapy program until full range motion can be achieved.

# Orthosis for hands

- Importance of the use of splints to prevent contractures.
- Contemporary approaches to splinting the burned hand have evolved from these concepts to emphasis on correct positioning of the hand and wrist and establishing the use of not only static but also dynamic splints to optimize early and late rehabilitation of these injuries.



# Pathophysiology

- The typical deformities seen in the burned hand are hyperextension deformity of the metacarpophalangeal joints,
- flexion deformity of the interphalangeal (IP) joints,
- loss of the transverse metacarpal arch,
- adduction contracture of the thumb,
- volar flexion contracture of the wrist, and shrinkage of the dorsal skin.
- The metacarpophalangeal joint assumes the hyperextended position because of with joint edema.

The most common deformity after a dorsal burn injury of the hand is the “clawhand” deformity, which positions the hand with the wrist in 15 to 30 degrees of extension, the MP joints in 70 to 80 degrees of flexion, IP joints straight, and the thumb abducted.



# Orthotic management

- Although splinting plays an integral part in early burn treatment,
- it should be used when the patient cannot exercise in a purposeful and supervised fashion or when correcting specific deformities but in a way that allows the patient motion of all other structures of the hand.

Fig. 16-3 Palmer hand burns require thorough evaluation to determine the type of splinting required. In general, the palmar skin will require maximum stretching to prevent the contracting forces of the healing burn. The antideformity position of the palmar burn consists of wrist extension, MP joint extension, IP joint extension, digital abduction, and thumb abduction and extension: the “open palm” or “pancake” position.



When a patient is unable to actively close the fingers into the palm, a dynamic splint can be fashioned that utilizes rubber bands to passively encourage the digits to flex into the palm.



Dynamic splint to correct adduction contracture that occur in pt with web space burn

