

Prosthetics and orthotics

Z. Rozkydal

Orthopaedics

- prosthetics and orthotics

Prosthetics - replacement of part of body

Orthotics - replacement of loosened function of part of body

Epithetics - cosmetic covering of part of body

Orthopaedic shoes

Adjuvatics – devices for independence

Prosthetics

Replacement of part of body

Above knee limb



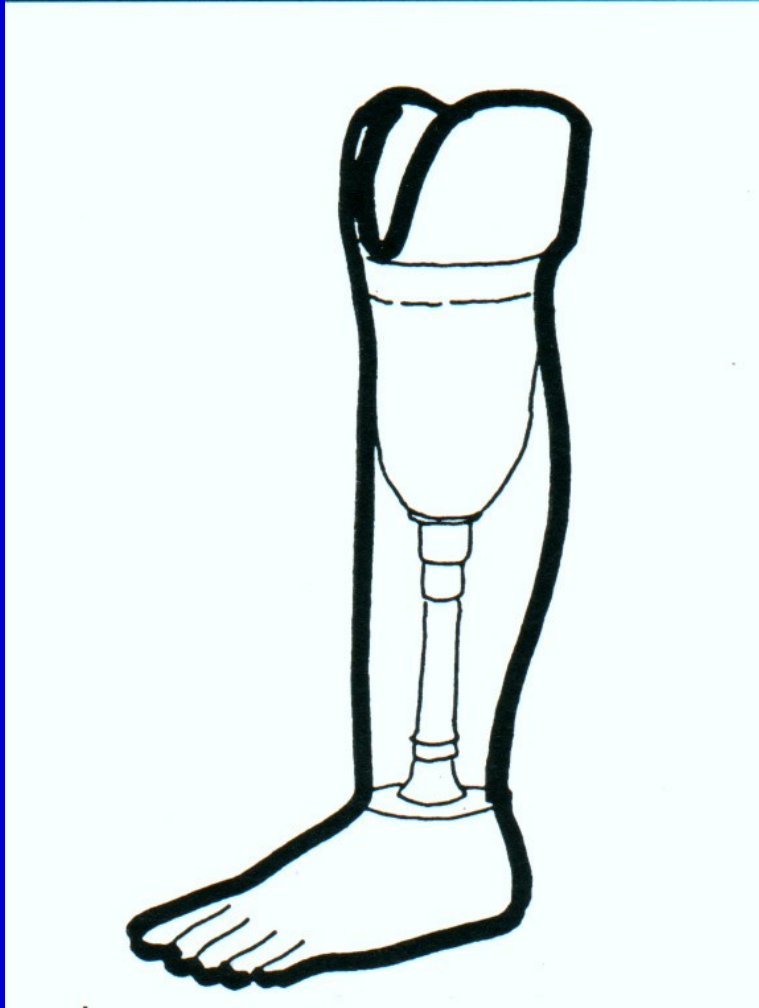
Requirement for prosthetic limb

Static function
Dynamic function
Well controlled
Light
Durable
Esthetic



Bandage of the stump

Prosthesis



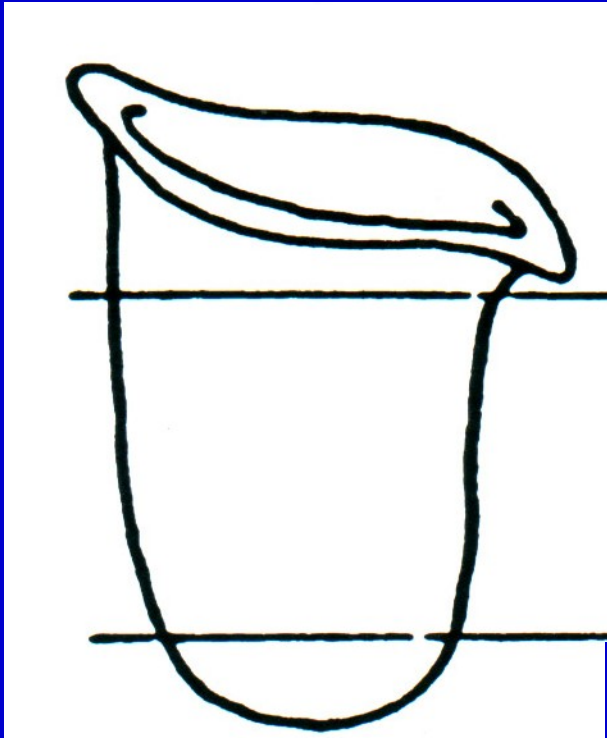
Stump bed- socket

Modular part

Adjuvans

Prosthetic limb

Stump bed- socket

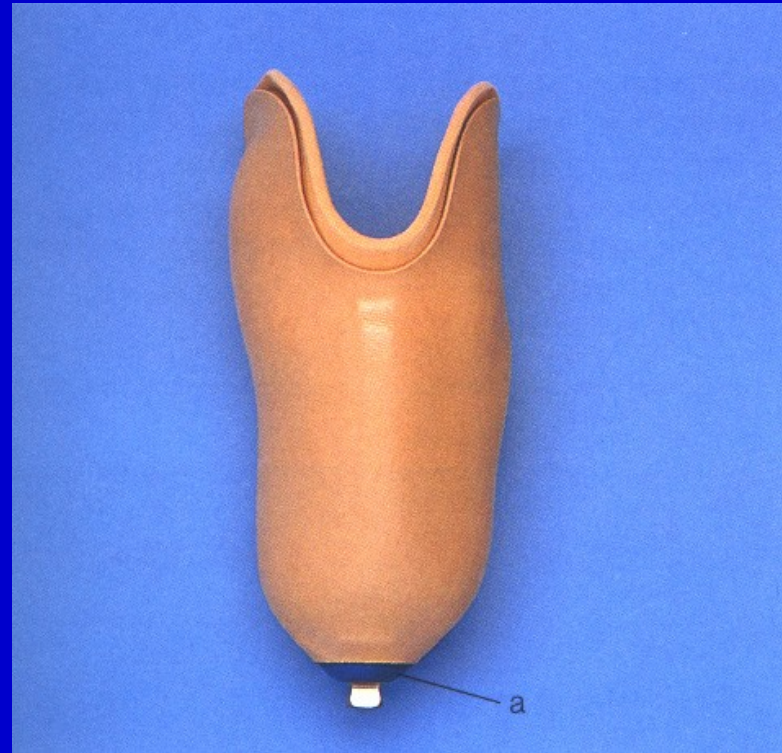


Scheme

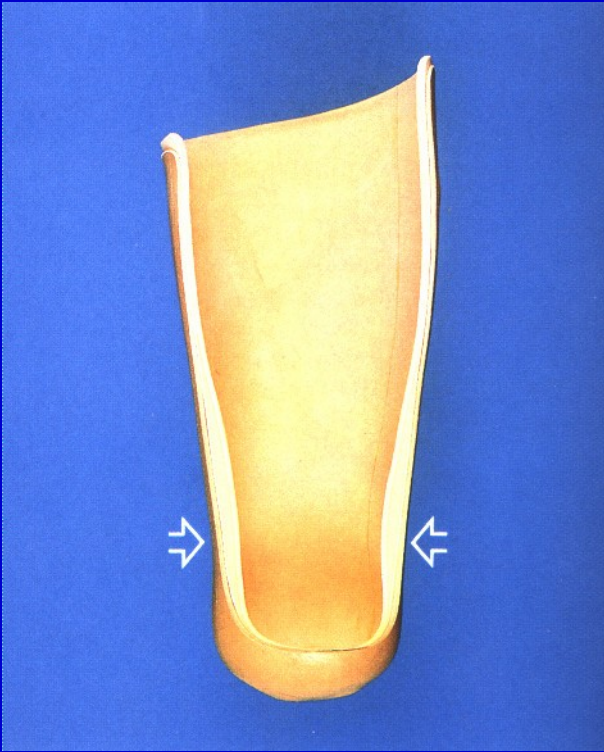
Ring

Walls

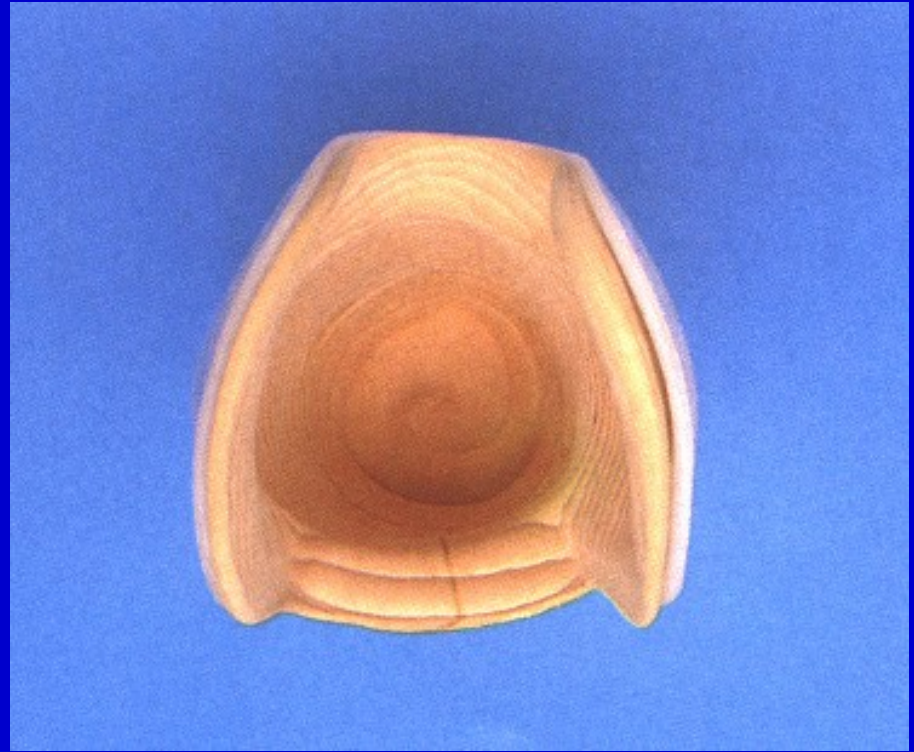
Bottom



Adjustments of stump bed



Soft padding
Good fitting
to avoid pressure sores
and skin irritation and aczema



Soft plastic bed

Stump bed- socket

The aim:

Weightbearing stump

Skin of good quality

Enough of soft tissues

Soft stump bed

Silicon sockets



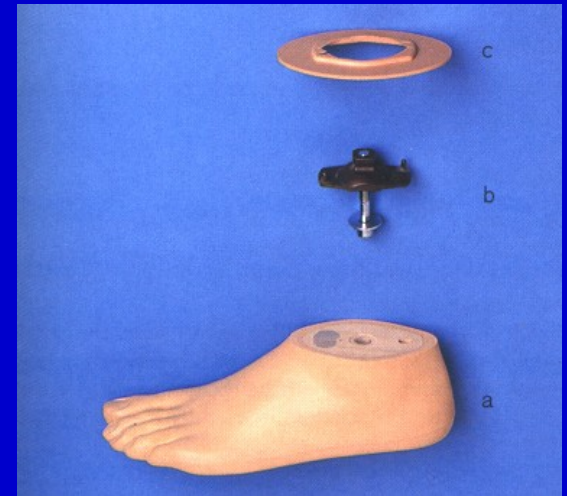
Bellow knee prosthesis

Materials

Steel, titanium, wood
Plastic, PVC
epoxyd, rubber, polyester,
termoplast, carbon.



Modular parts



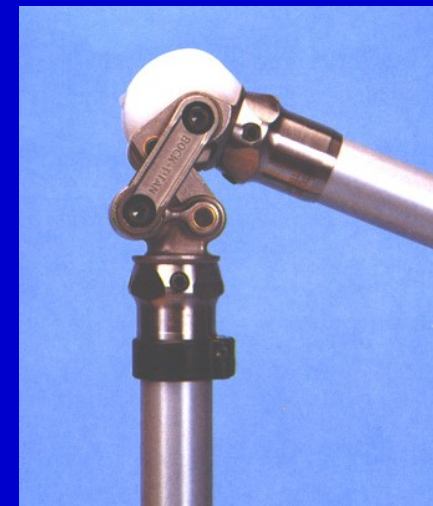
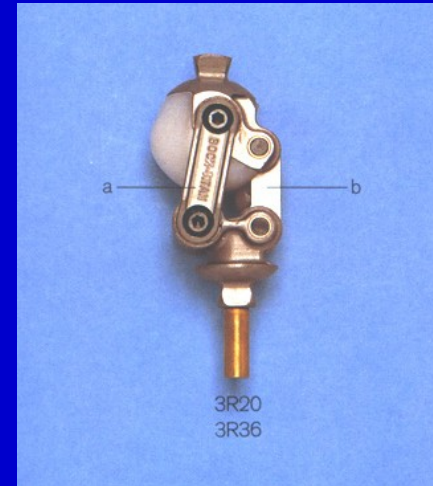
Adapter for dynamic walking

Joints

Hydraulic



Monocentric joint



Polycentric joint

Prosthesis

1. Immediate fitting
2. First prosthesis
3. Standard prosthesis



Immediate prosthesis

Prostheses of lower limb

Shoes

Bellow knee limbs

Above knee limbs

After disarticulation in knee joint

After disarticulation in hip joint



Bellow knee prosthesis

Prosthesis of the foot



Multiaxial movements
Simple lift off



Carbon prosthesis of the foot



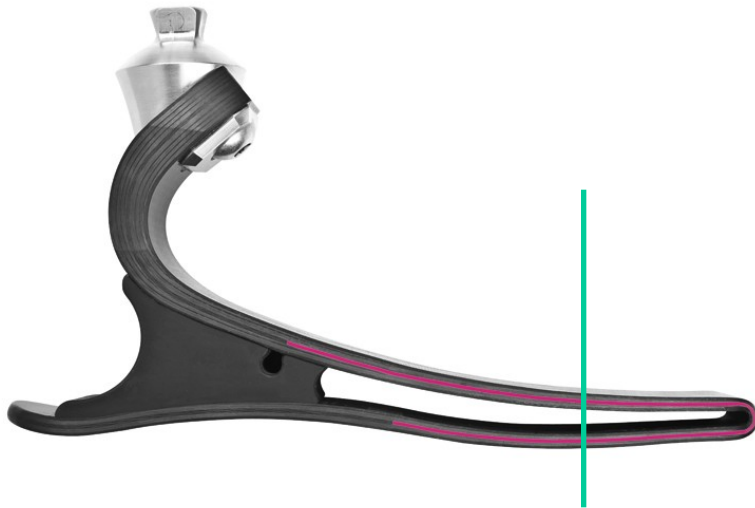
Carbon fiber

Dynamic forefoot

Soft heel

Multiaxial movements

Prosthesis of the foot



Multiflex Ankles

Flexfeet

Adjustable Heel Height Feet



Prosthesis after Pirogov amputation

Bellow knee limbs

Pediatric Limbs

Cosmetic Limbs

Sport Limbs

Swim Limbs

Conventional Sockets

Silicone Suction Sockets

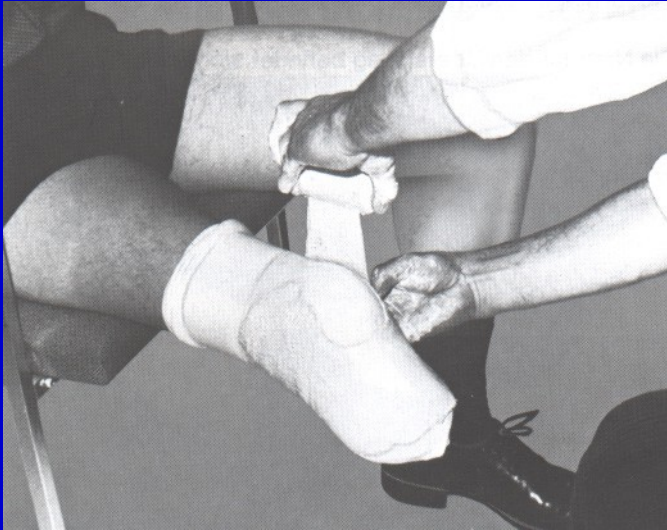
Carbon Fiber Sockets

Thermo Plastic Sockets

Ultra Light Modular Setups



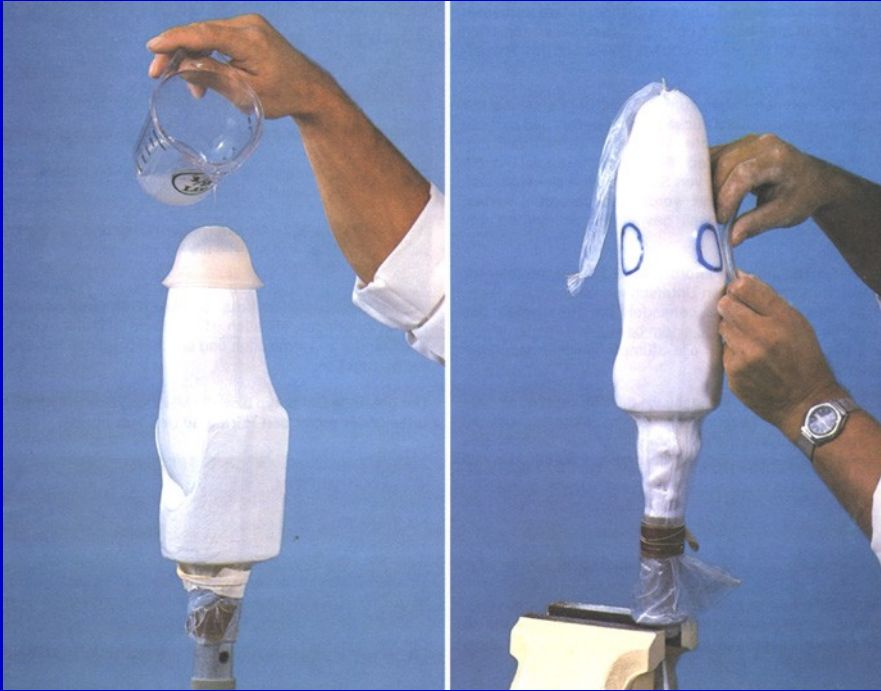
Processing



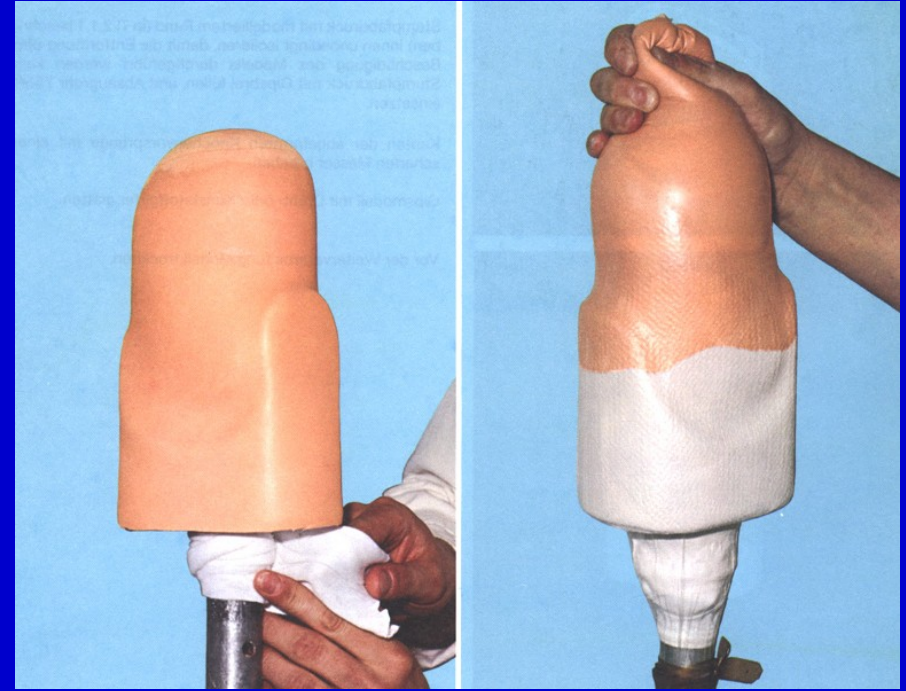
Plaster negative

Plaster positive

Processing



Prosthetic socket from silicon



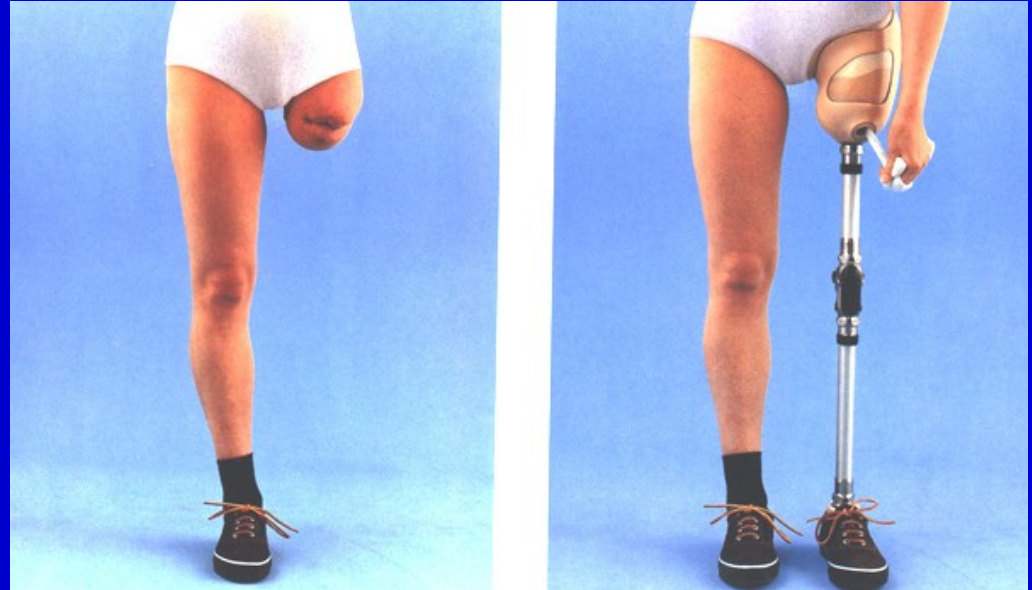
Prosthetic socket from thermoplast



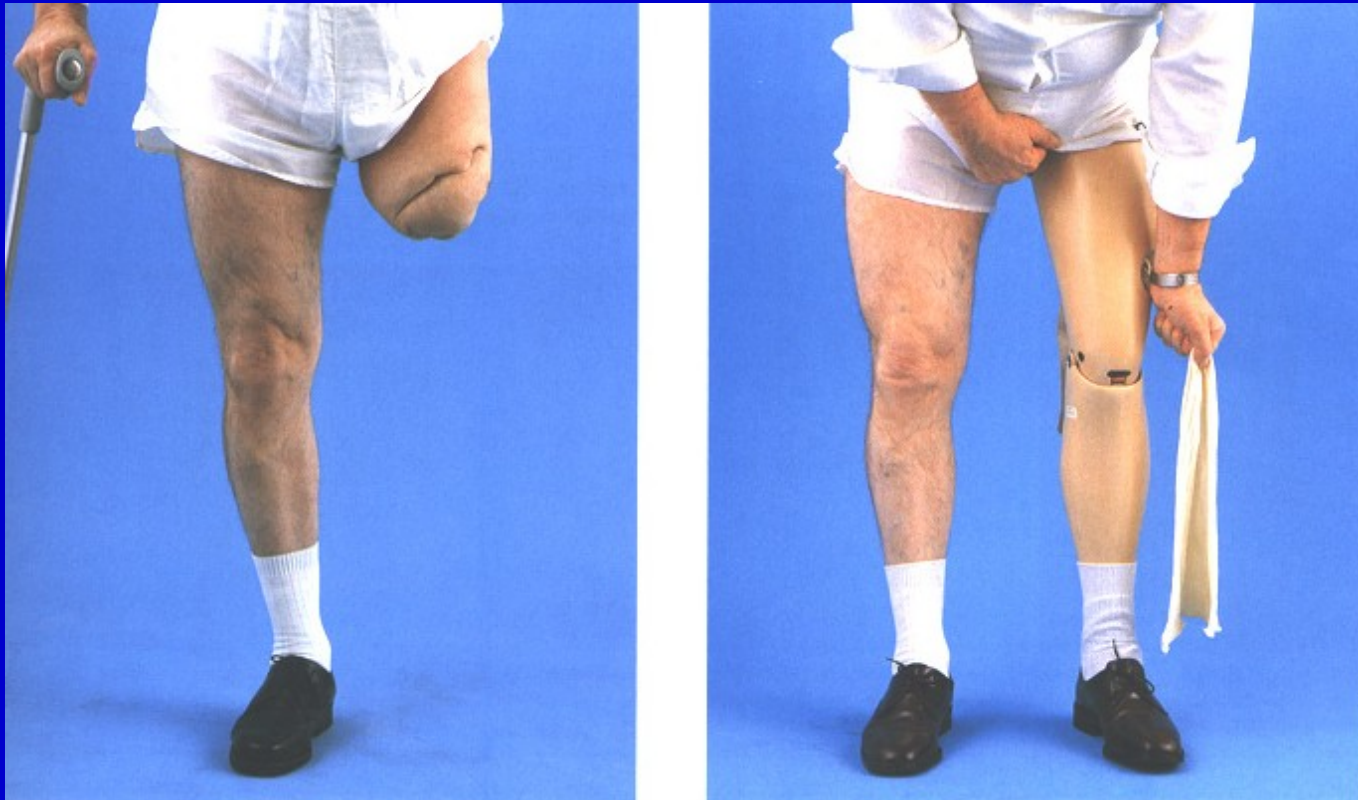
Bellow knee limb from thermoplast

Above knee limbs

Conventional AK Limbs
Pediatric Limbs
High Tech Sport Limbs
Suction Sockets
Silicone Suction Sockets
Hydraulic Knee Units
Polycentric Knee Units
Microprocessor Knee Systems



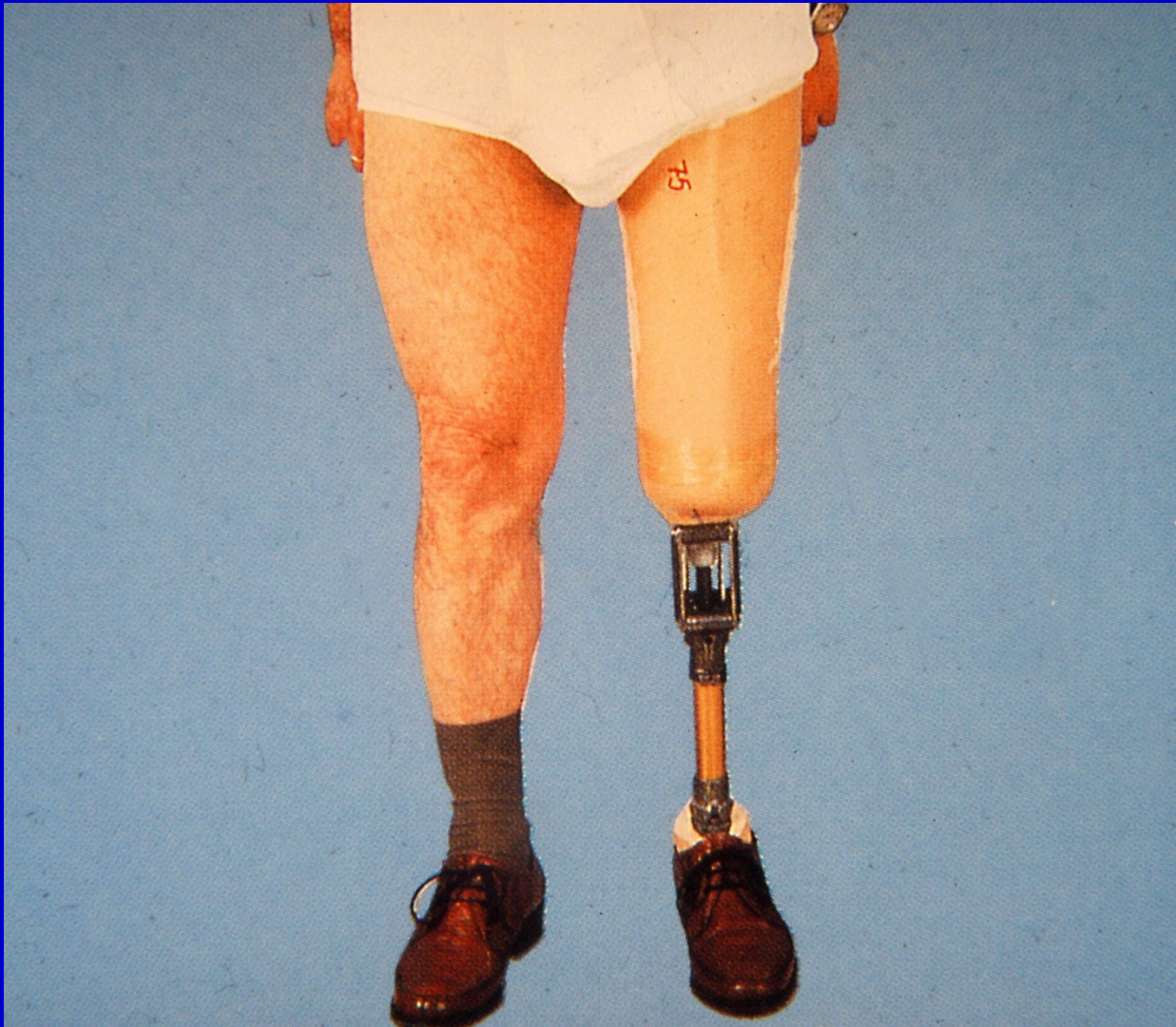
Modular above knee limb



Placement of the stump into the socket

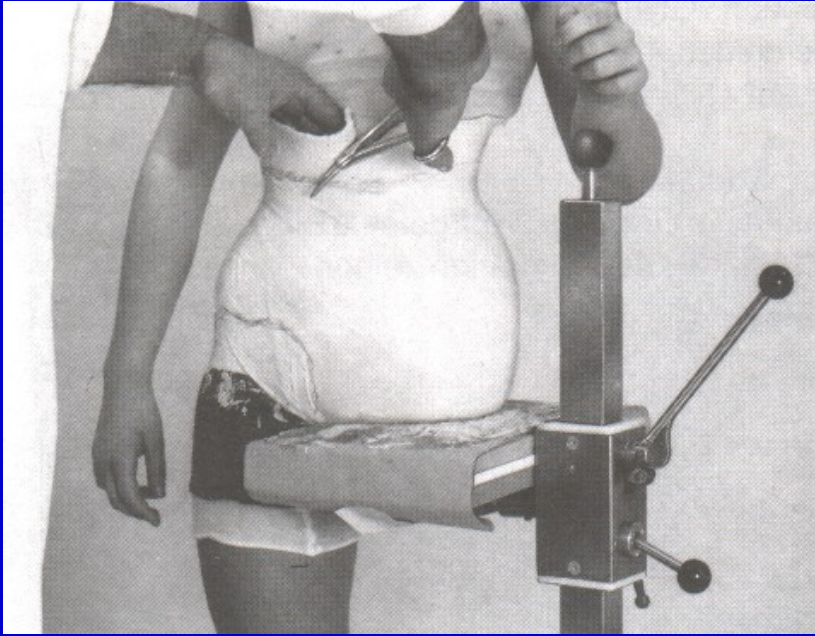


Modern above knee prosthesis



Prosthesis in knee disarticulation

Processing

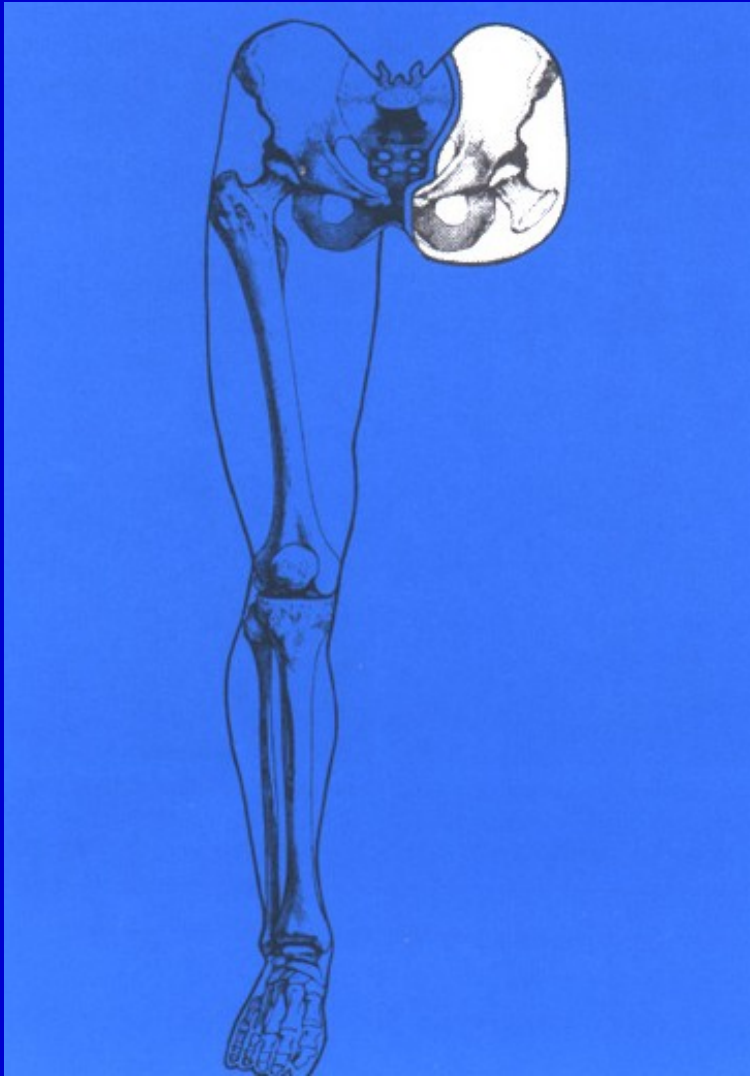


Plaster negative

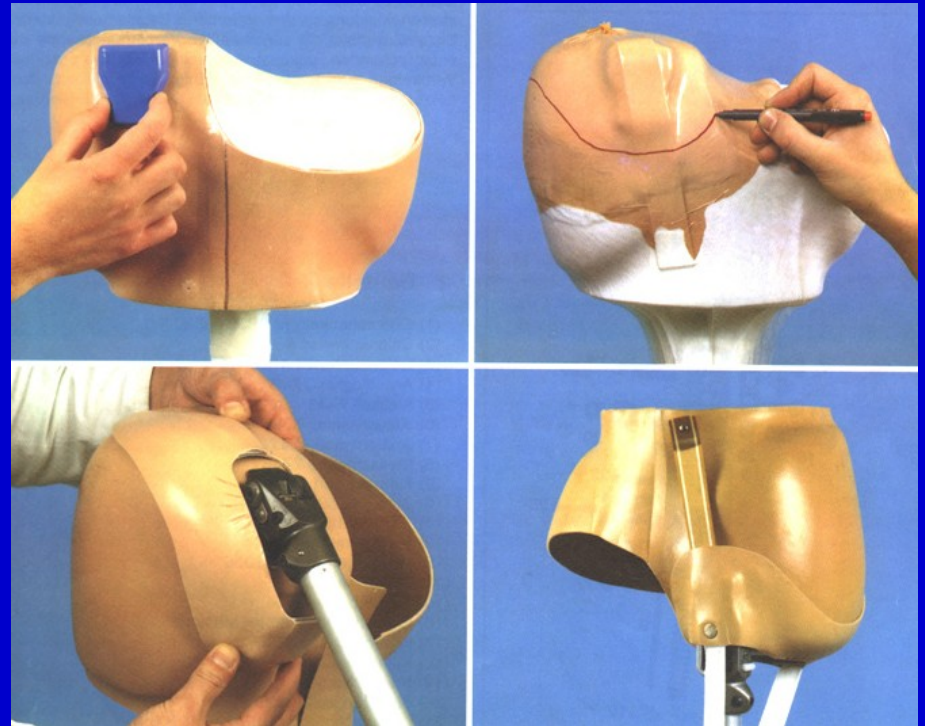
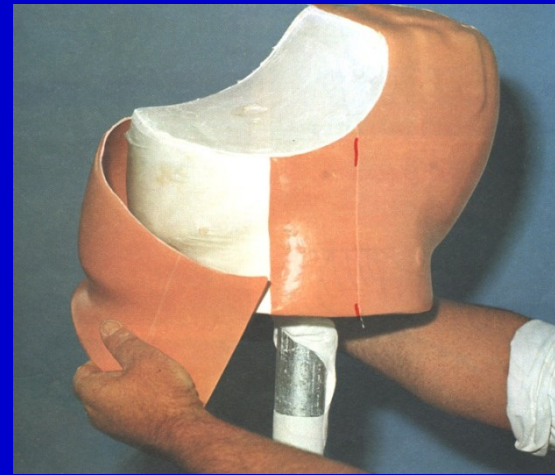


Plaster positive

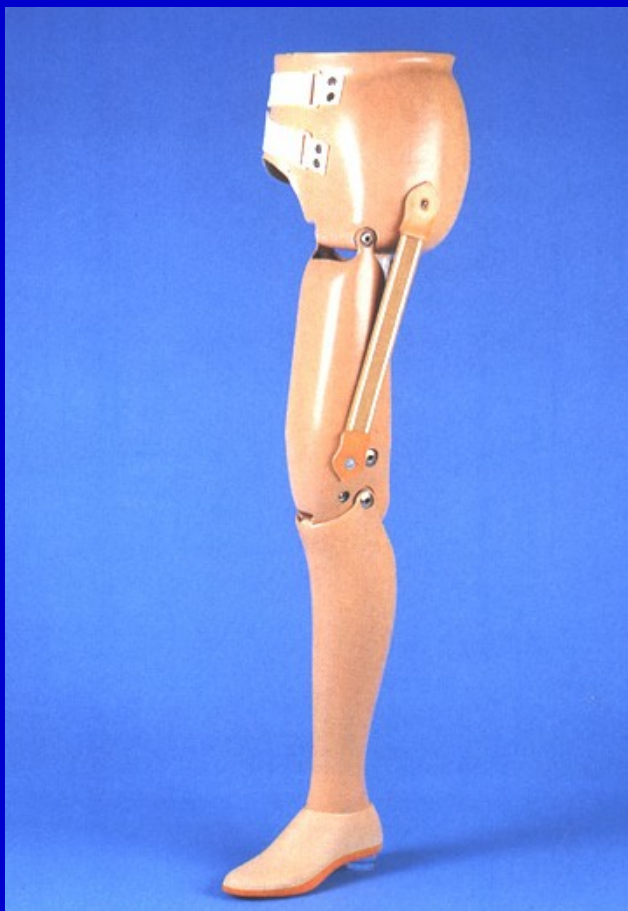
Processing



Disarticulation in hip joint



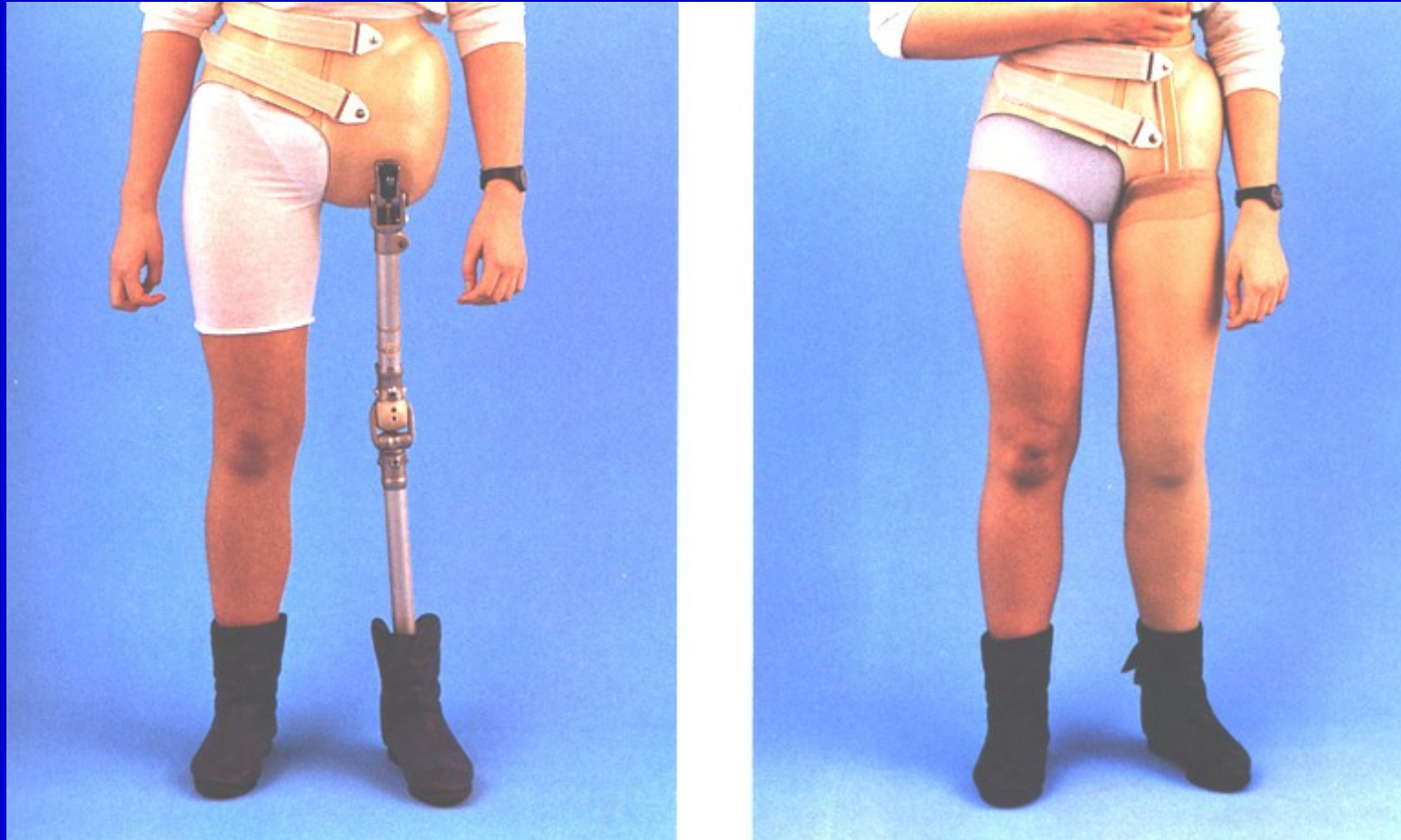
Pelvic ring



Prosthesis after disarticulation
in hip joint
Rigid pelvic ring



Flexible pelvic ring



Rigid pelvic ring

Physiotherapy with prosthetic limb

Standing

Proprioception

Balance

Coordination of movements

Gait

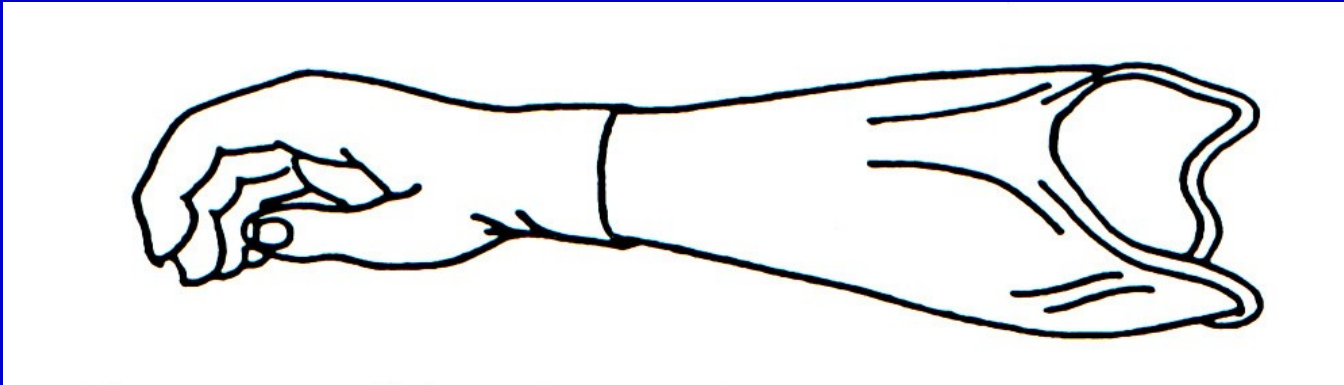


Prosthesis of upper extremity

Cosmetic

Mechanical hand

Bioelectric



Cosmetic prosthesis

Prosthesis of upper extremity

Above & Below Elbow Prostheses

Passive Limbs

Functional Limbs

State-of-the-art Myoelectrics

Bionic Hands and Digits

Custom Gloves

Partial Hand Prostheses

Cosmetic Restorations

Hands & Fingers

Feet & Toes



Cosmetic prosthesis



Cosmetic prosthesis of the hand



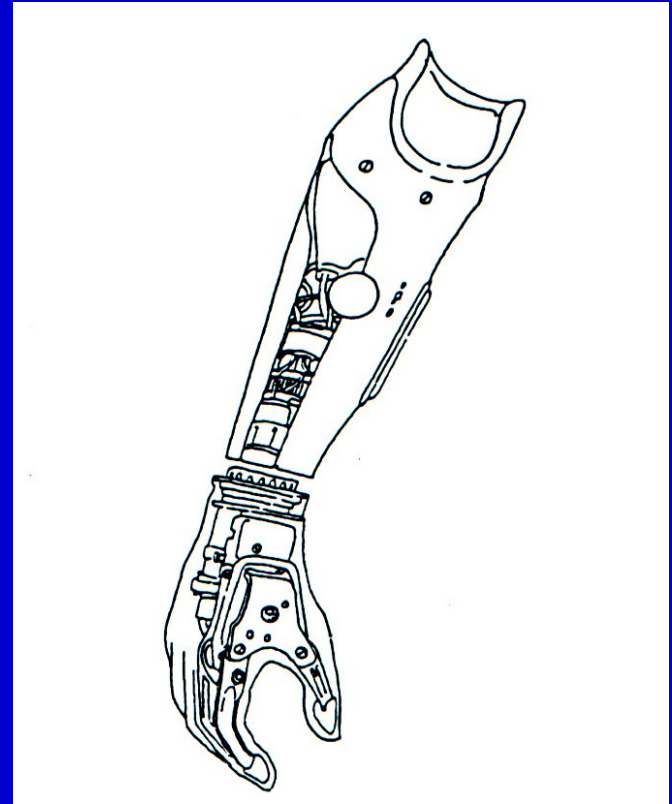
Prosthesis with dynamic arm

Bioelectric prosthesis

Power:

Movements of the body

Muscle contractions at the stump



Myoelectric prosthesis

Orthosis

Stabilisation

Correction of malalignment

To correct asymetry



Orthosis of the knee joint

Orthosis

Passive

Lumbar orthosis



Active

Orthosis of the knee



Orthosis of the trunk



Jewett orthosis



Cheneau orthosis

Collars



Soft collar



Philadelphia collar

Orthesis of lower extremity



Rigid



Active

Orthosis of upper extremity



Elbow orthosis



Orthosis of the wrist joint



Orthesis of the hip joint

Orthopaedic shoes

Functions of ortopaedic shoes

1. Correction of malalignment
2. Immobilisation
3. Aleviation of pain



Orthopaedic shoe

Types of orthopaedic shoes

Adjustment of standard shoes

Professional shoes

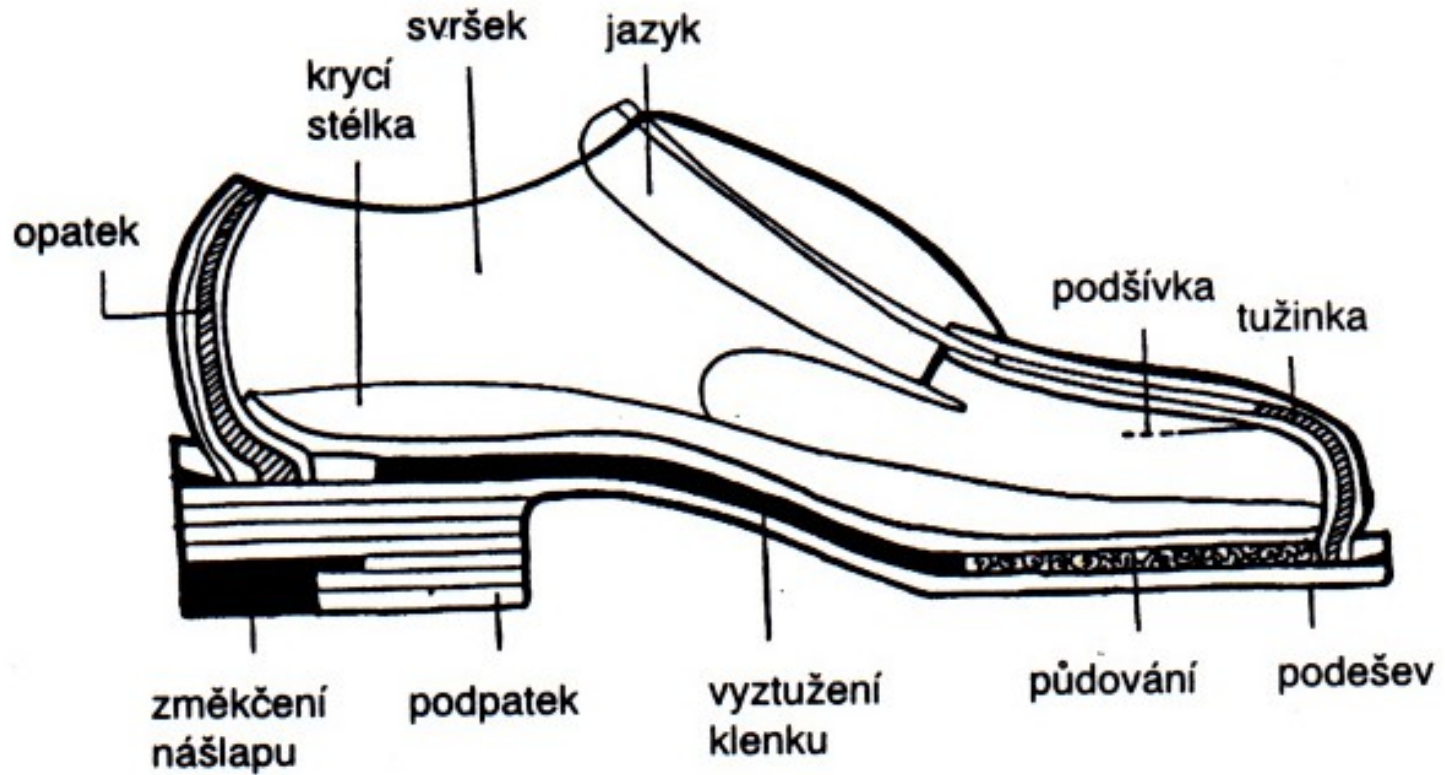
Ortopaedic shoes

Diabetic shoes



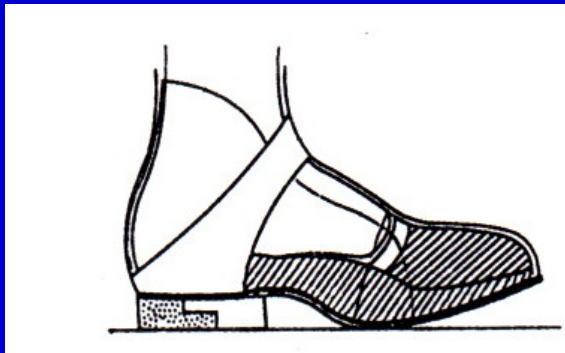
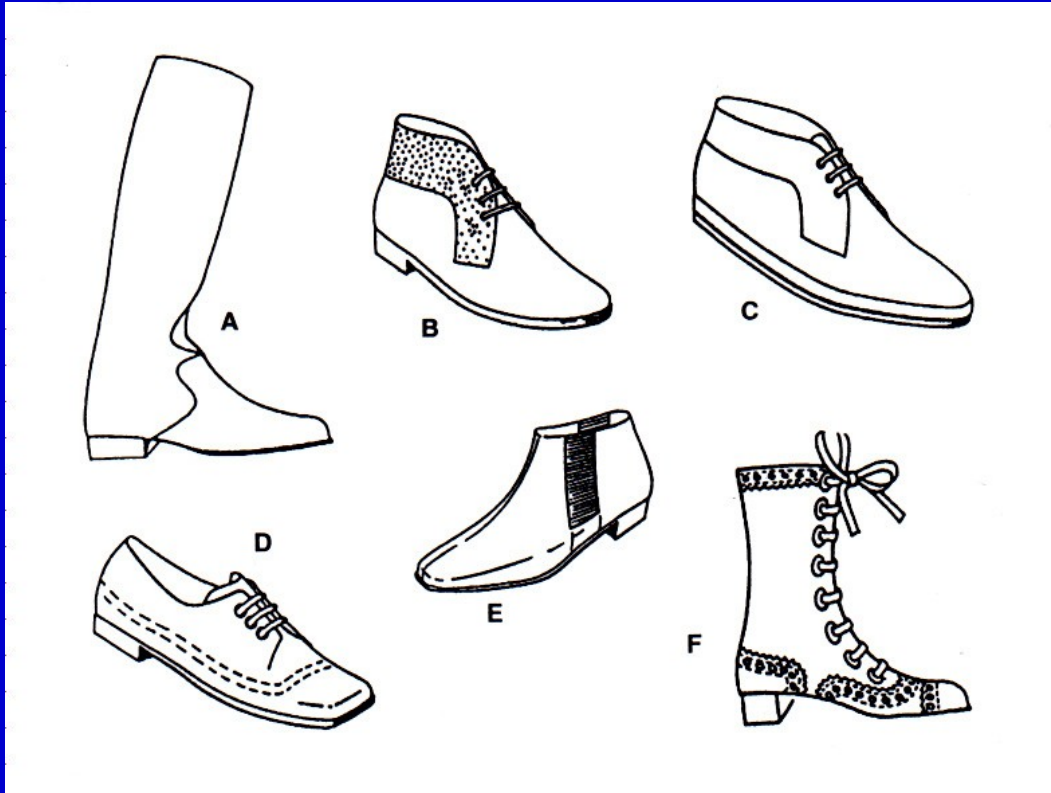
Diabetic shoes

Parts of the shoe



Scheme

Types of the shoes



Shoe after amputation in the forefoot

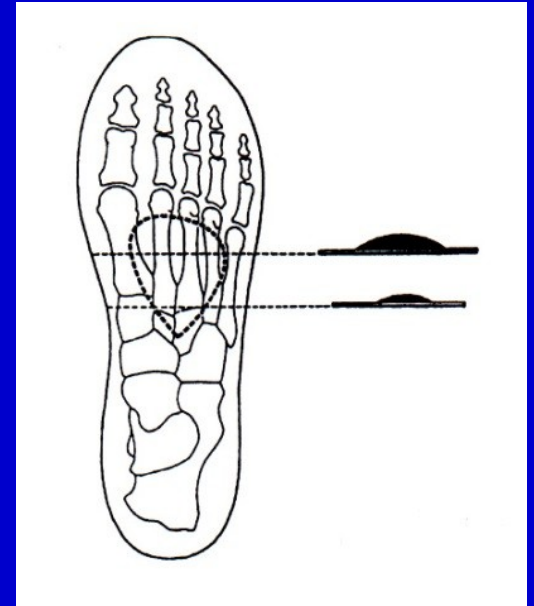
Principles of the shoes for kids

1. 1 cm longer than the foot
2. Wider parts for the forefoot
3. Flexible in the middle part
4. Firm heel

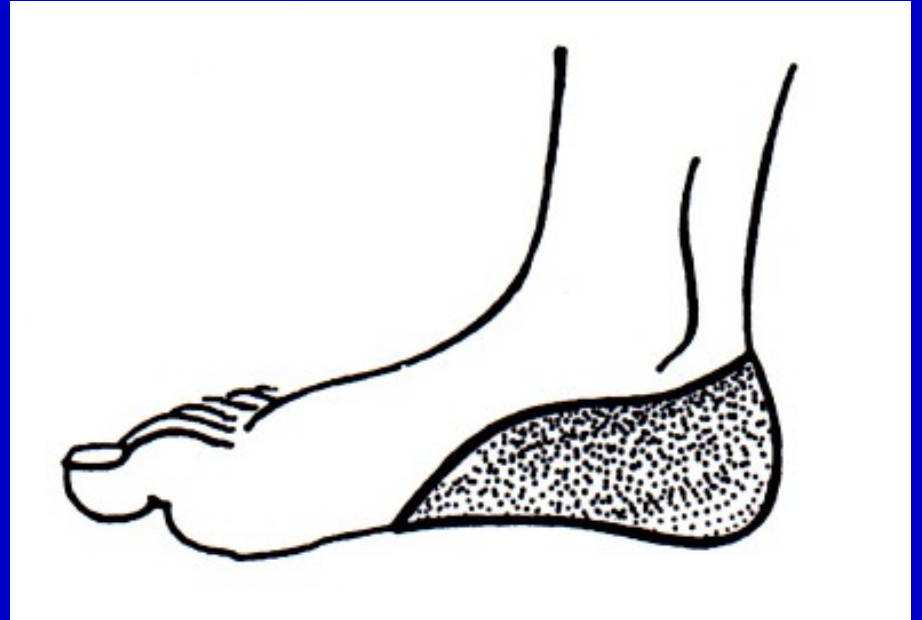


Children shoes

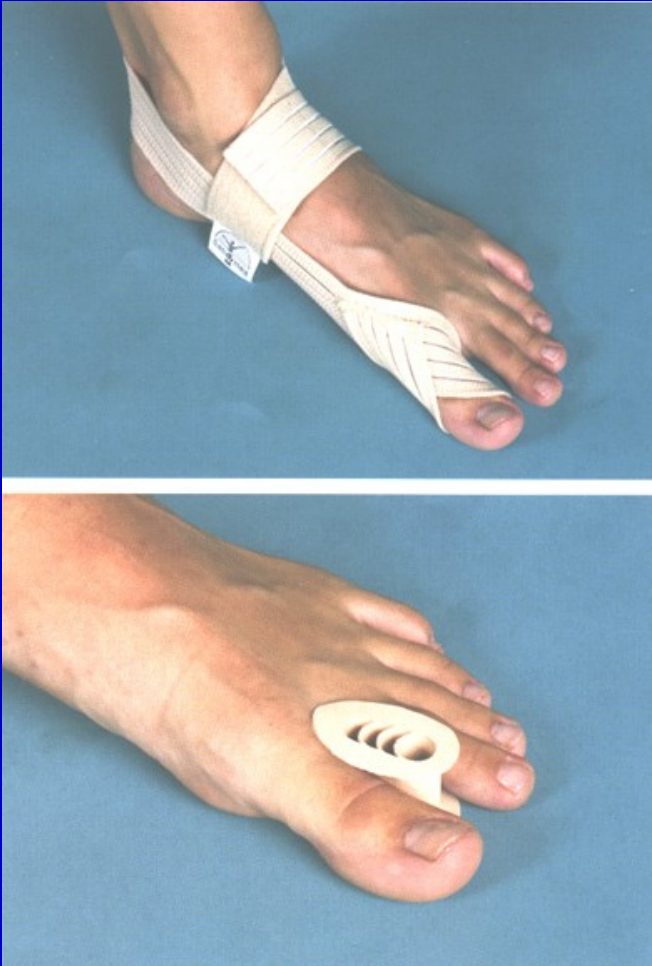
Padding



Paddings



Correctors



Bunion



Calcaneal spurs

Adjuvatics

Crutches
Walkers
Toilet chairs

