

# **Amputation of the lower limbs**

# Amputation

- oldest historically documented operation (5,000 BC)
- ritualistic (sacrifices to the gods)
- criminal effect (deterrent mutation)
- preventing the escape of a slave (preserving manual potential)

# The greatest development in wars

## - 1st World War = 100,000 amputations

- Historical reasons:
- limited technical possibilities of medicine
- insufficient medication options
- unavailability of anaesthesia
- ignorance of anti-shock therapy
- ignorance of asepsis
- ignorance of blood transfusion

# Principles – Hippocrates – 500 BC - still valid

- Remove diseased tissue
- Reduce disability
- Save a life

# Indikace k amputacím

- Trauma - reversible ischaemia
- Tumours - especially malignant
- Infect - long-term local processes
  - - acute sepsis from the lok. process
- Necrosis – including caused by physicists. effects – burns, frostbite, el. current – after demarcation of necrosis
- Function – or obstruction of proper functioning
- Soft tissue and skin cover defects

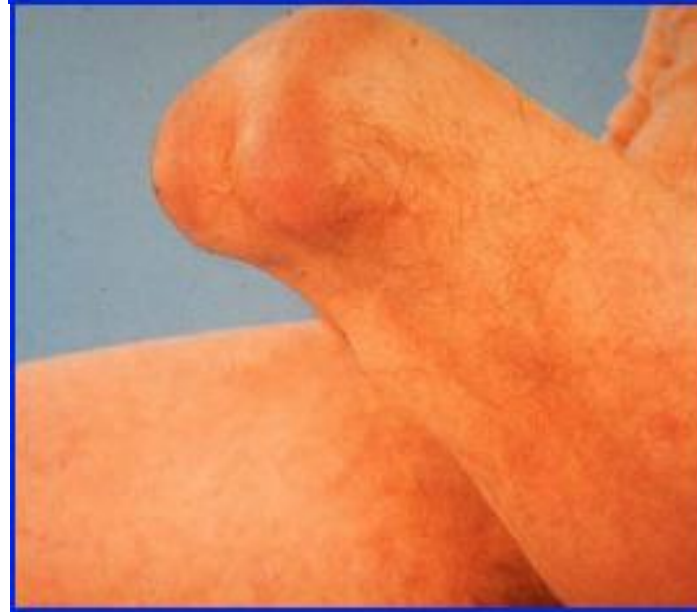
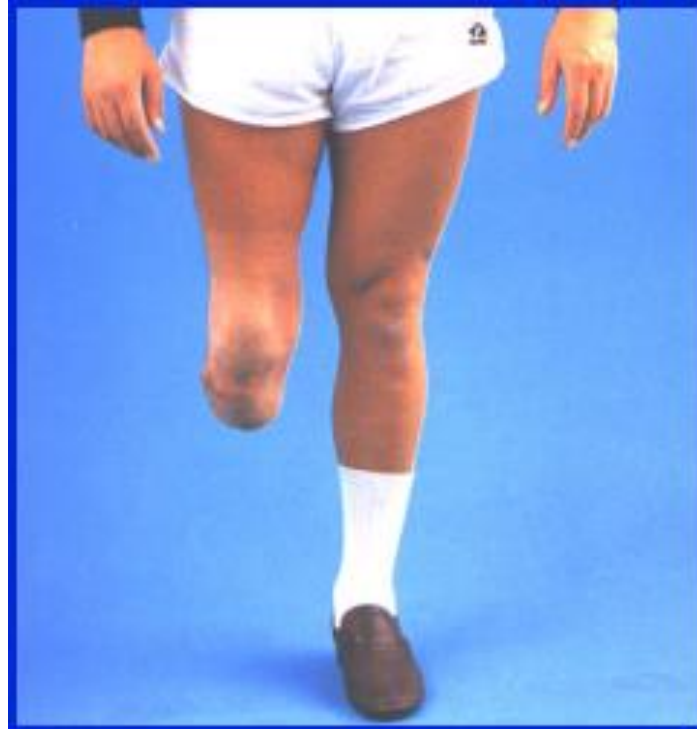
# Efforts to save the patient's limb must be realistically informed about:

- planned treatment procedure – the opposite. Performances
- possibilities of developing both infective and sepsis
- possibilities of development of tissue necrosis
- expected duration of treatment
- socioeconomic aspects of treatment
- expected cosmetic and functional results of treatment

Worst situation – the limb is saved, but afunctional, painful and finally amputated after long hardships

# Amputation

- **Amputation**
- Is the ediation of the peripheral part of the limb with a break in bone continuity
- **Exarticulation**
- Is the injury of the peripheral part of the limb at the site of the joint



# Indications

- Severe ischemia
- Severe traumas
- Infection with sepsis
- Malignant tumors
- Congenital defects
- Neuropathy leading to trophotic ulcers





# Before surgery

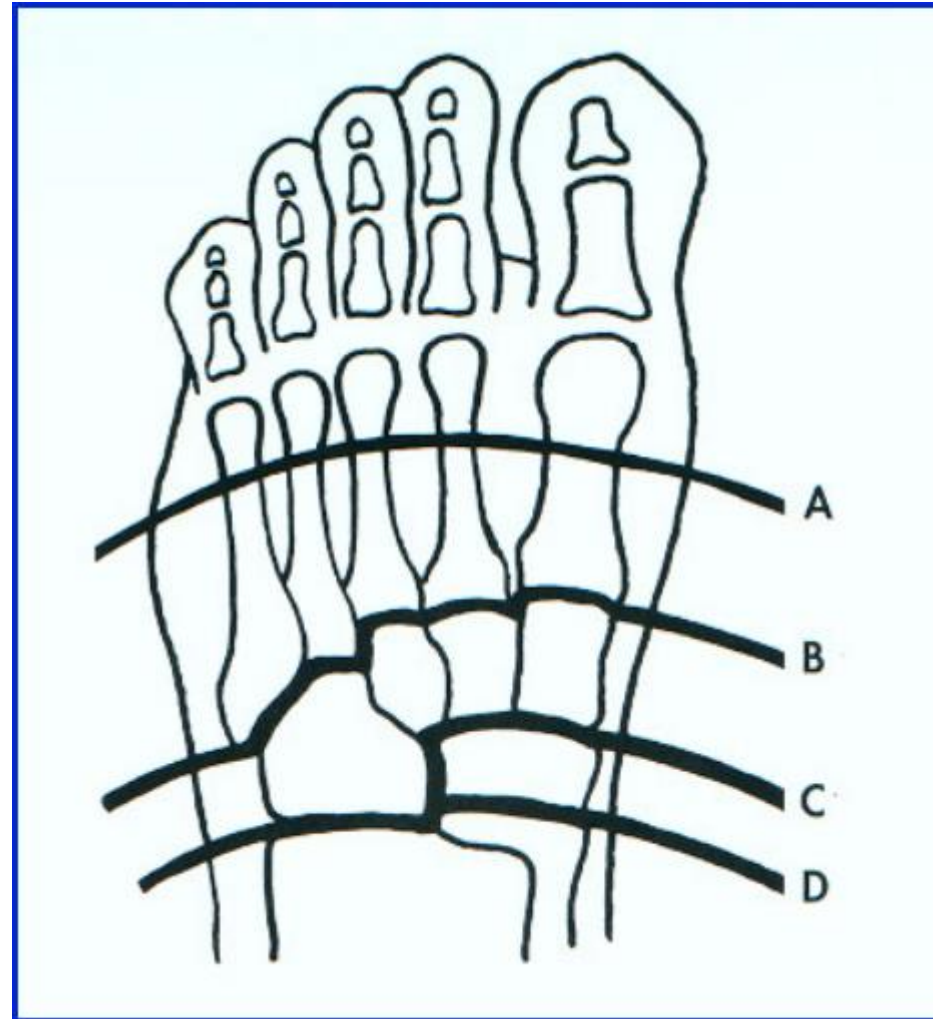
- Individual approach
- Condition of the limb- bloodshed (arteriography)
- General status
- Job title
- Amputation height
- Consultation with a prosthetic technician

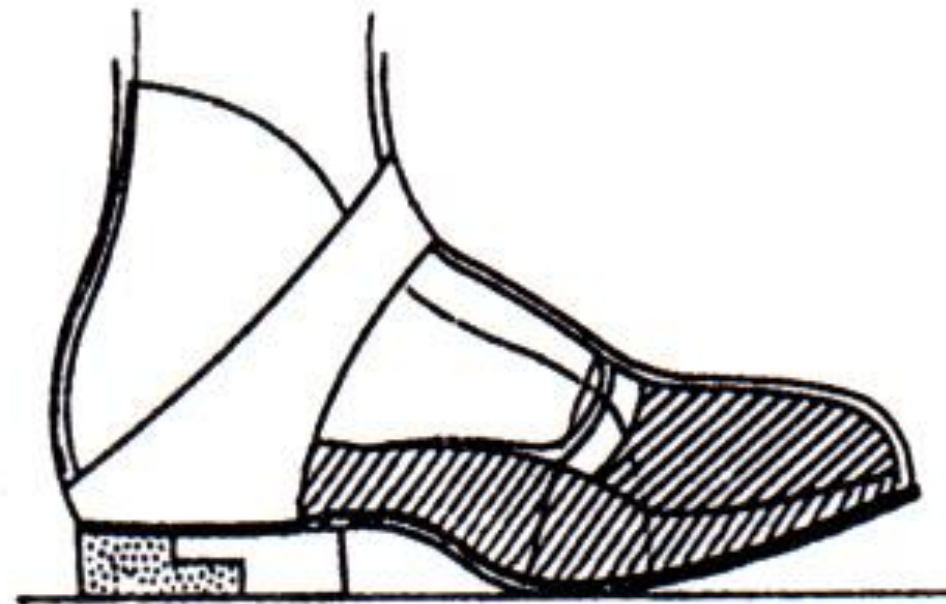
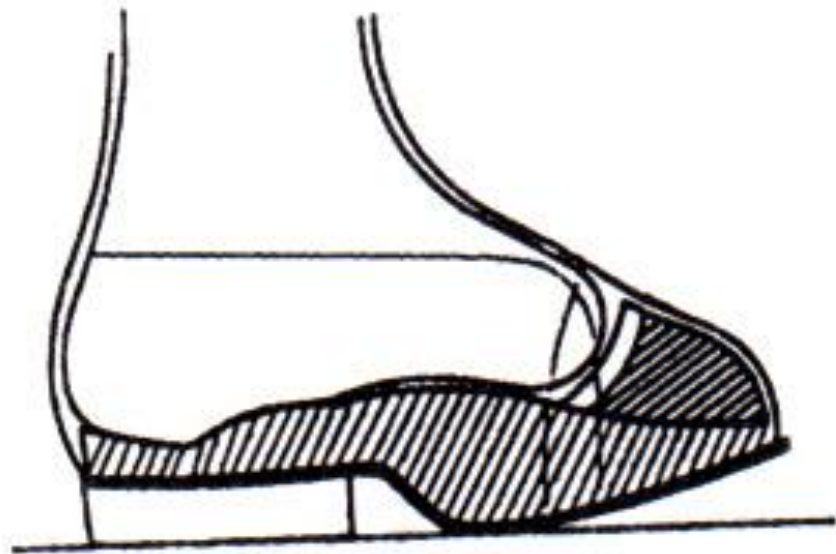
# Technique

- Usually anemic terrain
- Careful building of bleeding
- Accustomed operating procedures
- Quality skin cover of the amputation stump
- Muscle slicing distal and stitching together - myoplastic amputation of  
Ligature by arteries and veneer alone
- Bone prominence shedding
- Drainage of surgical wounds

# Amputation in the leg area

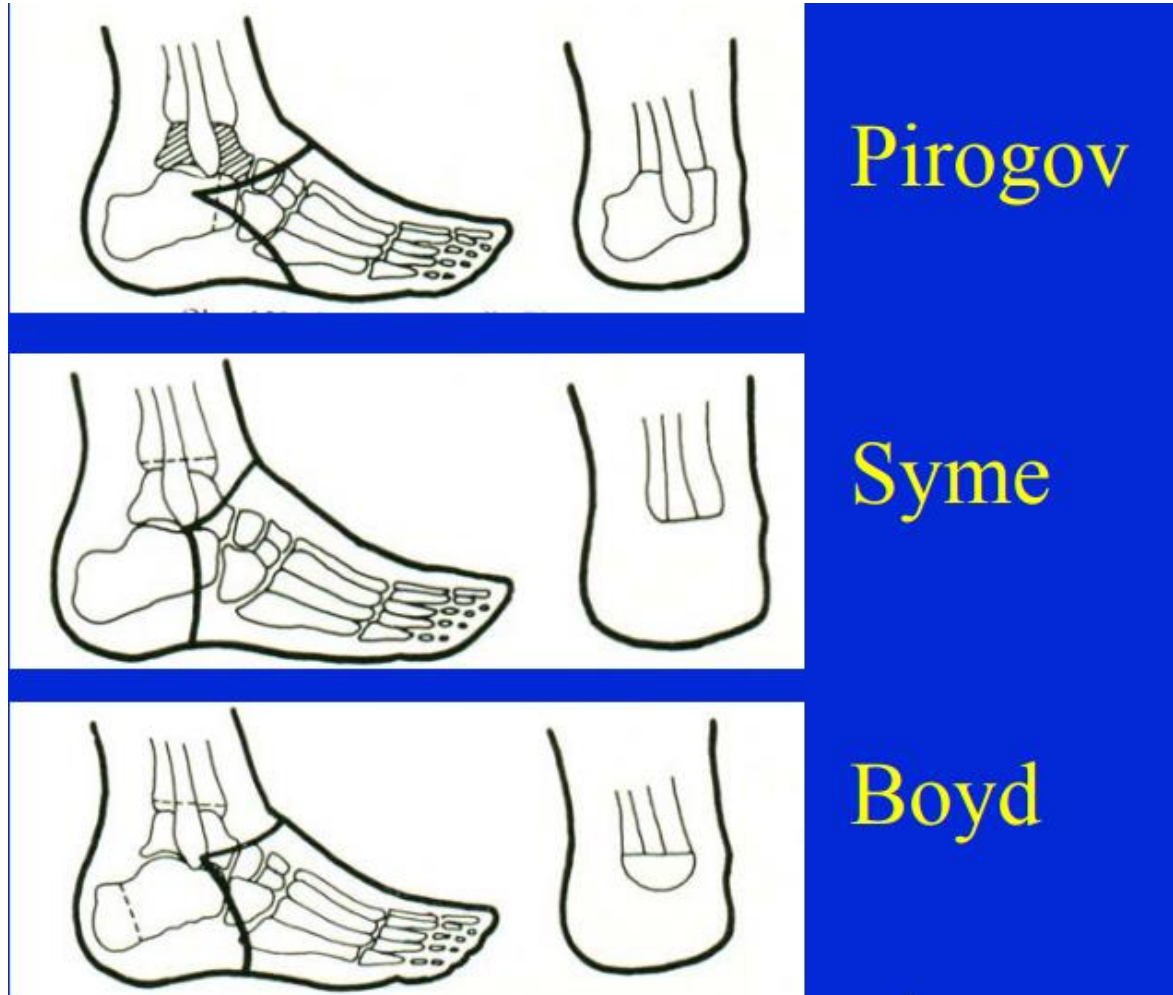
- Fingertips
- Fingers
- A - Metatarzy – Sharp
- B - Lisfrank
- C - Bon-Jäger
- D - Chopart
- 





**Obz. 59.** *Obuv pro amputace v oblasti metatarsů (podle Regenspurgera).*

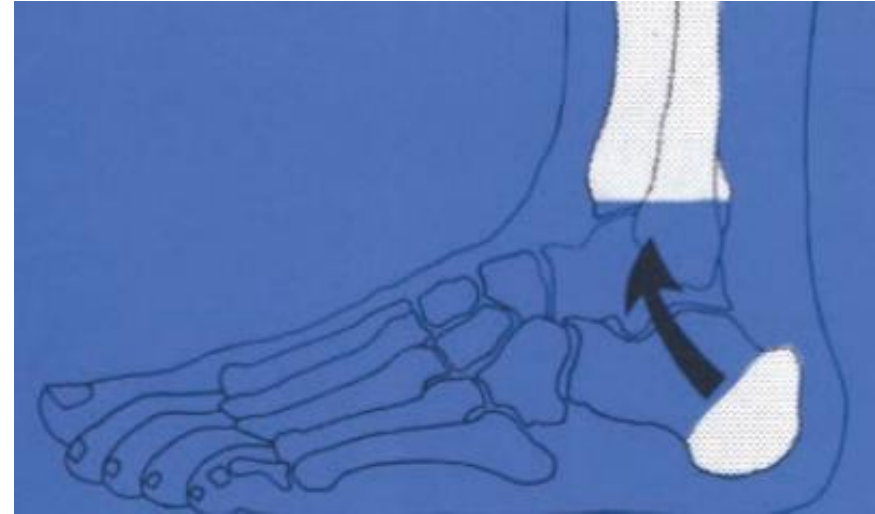
# Amputation in the leg and mucus area



# Amputation in the leg and mucus area

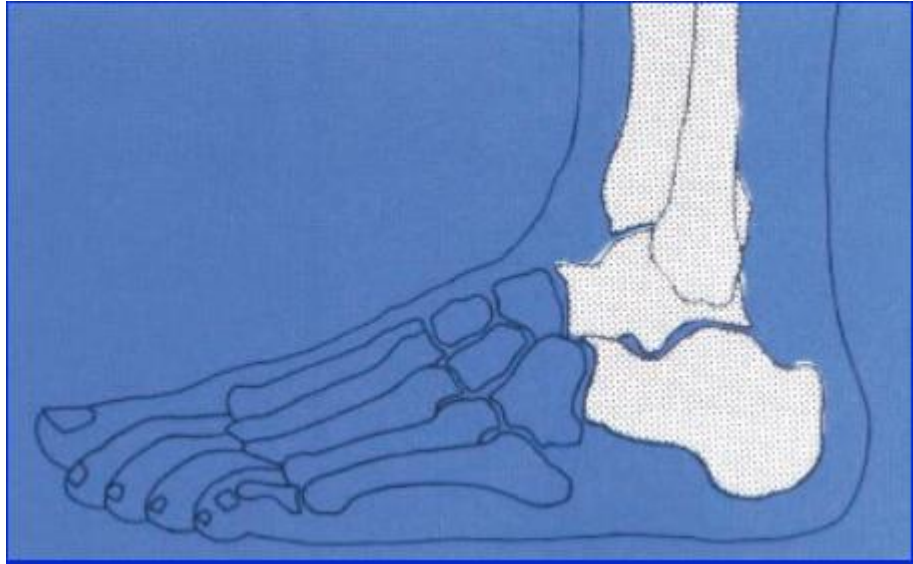


Amputation in Lisfrank's joint

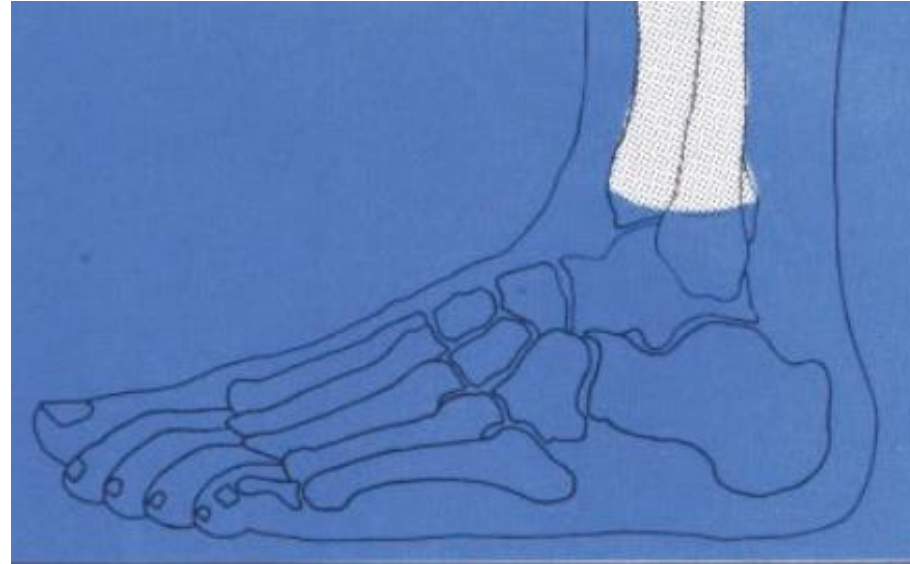


Amputation by Pirogov

# Amputation in the leg and mucus area



Amputation in Chopart's joint



Amputation by Syme



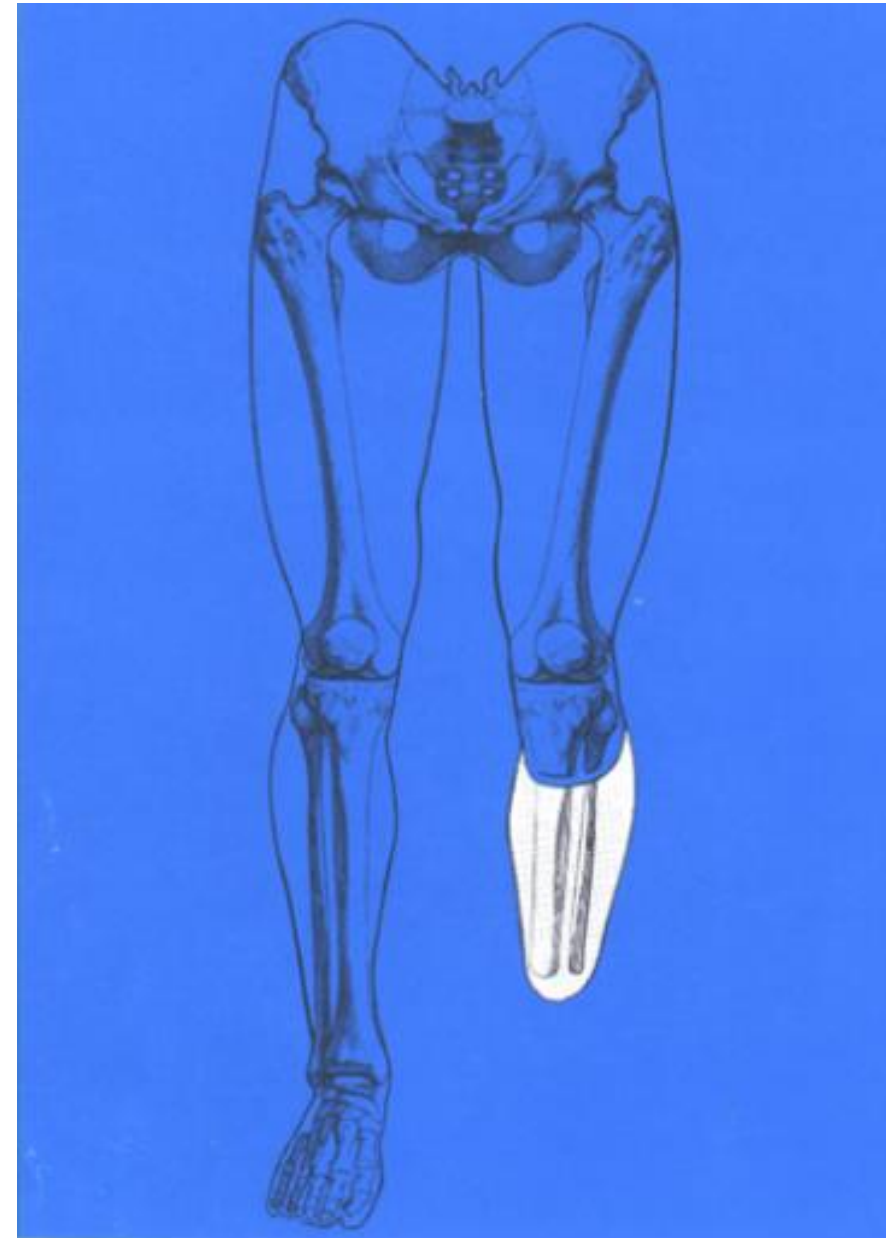
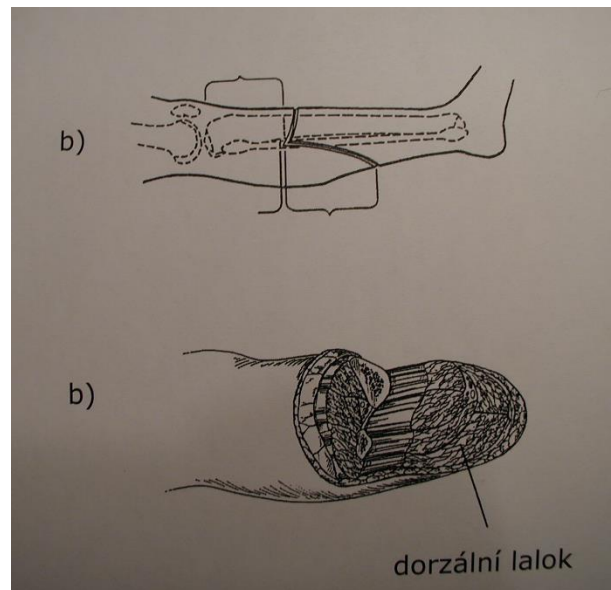
# Amputation by Boyd



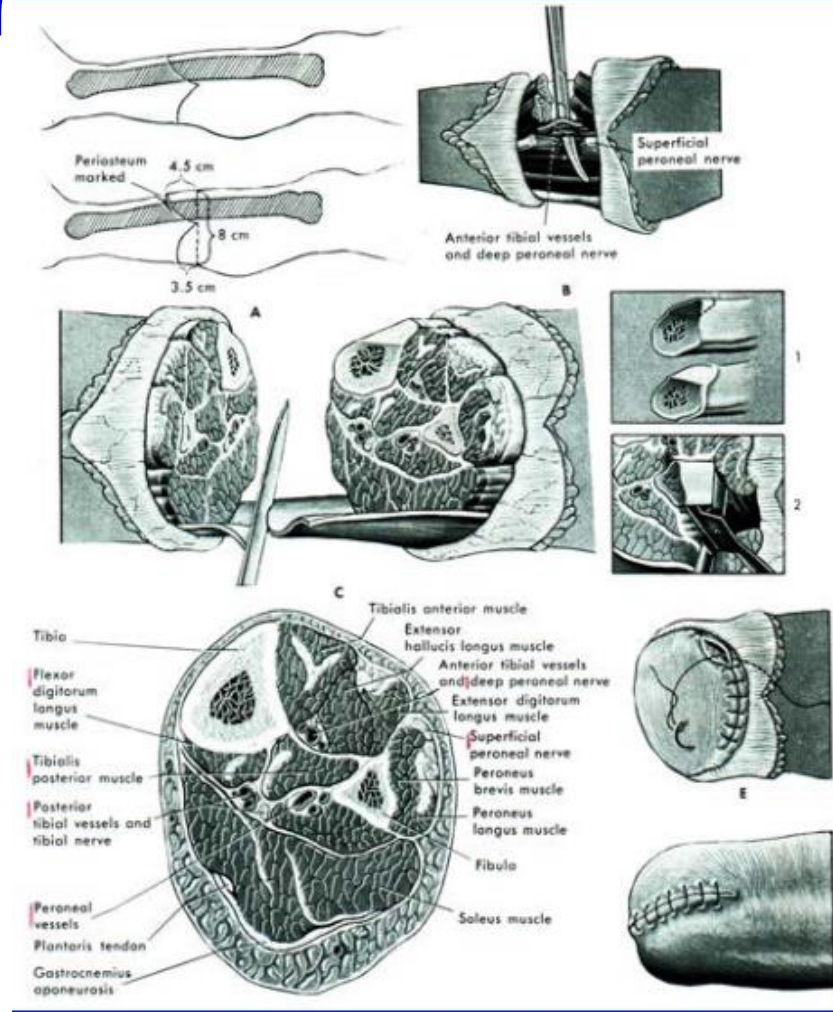
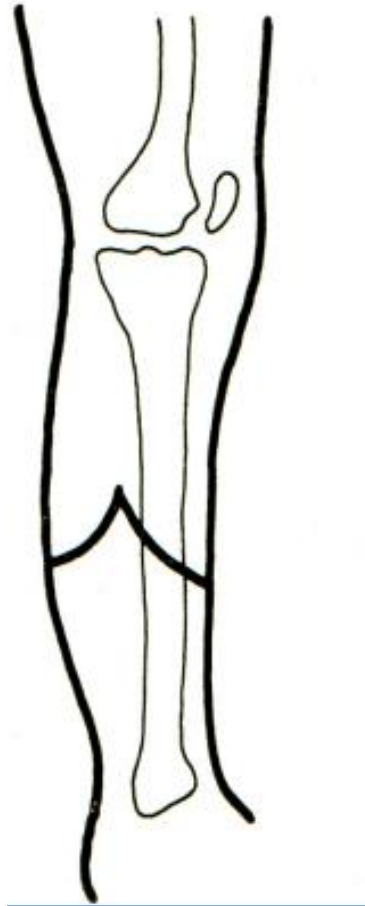


# Amputation in cruris

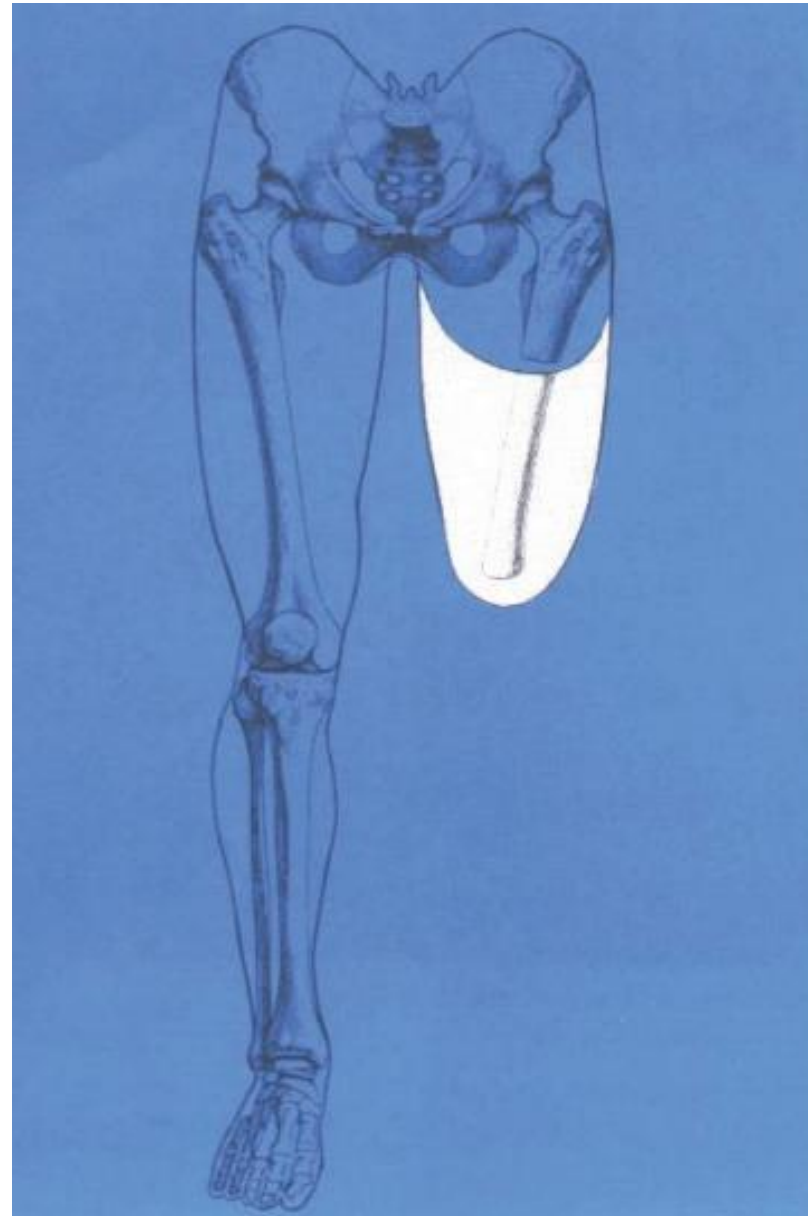
Amputation below the knee. 8-15 cm below the articular slit of the knee.



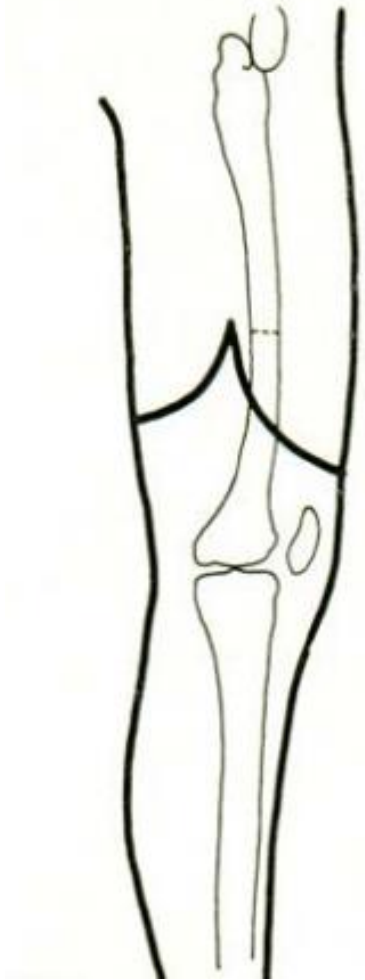
# Amputation in the lower leg



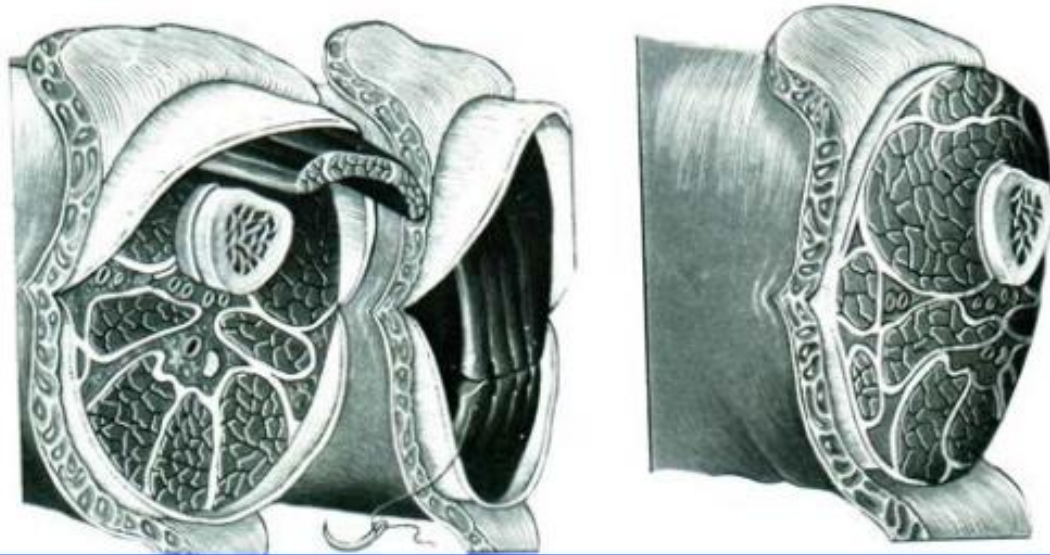
# Amputation in the thigh



# Amputation in the thigh

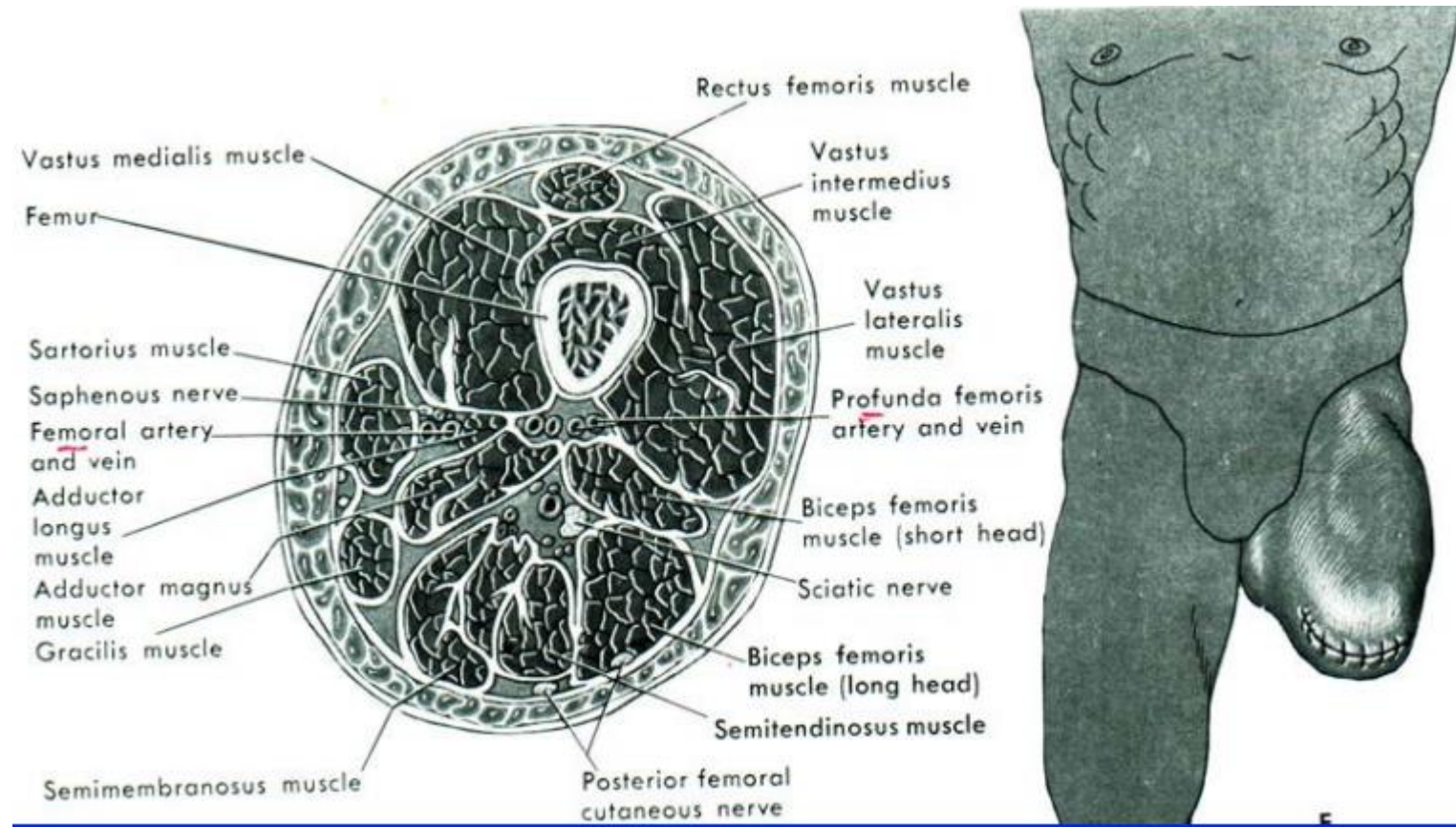


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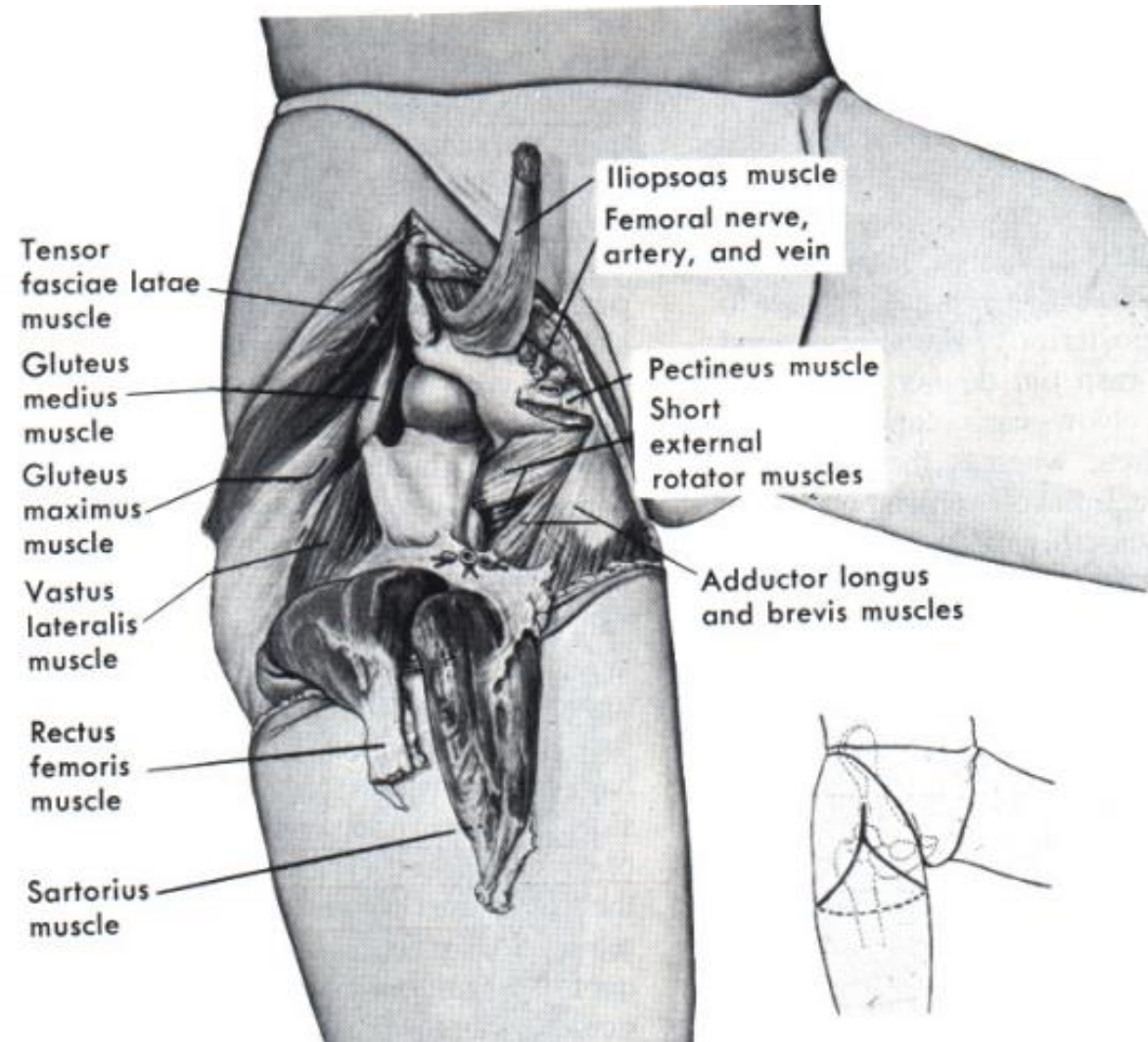




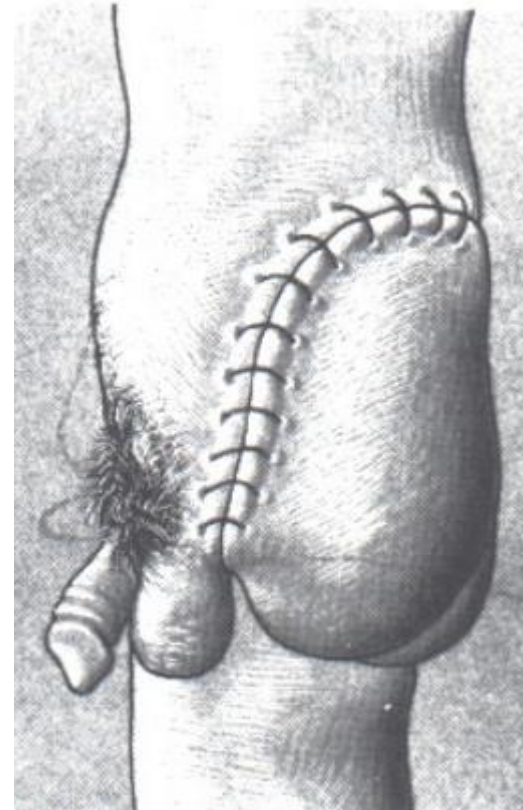
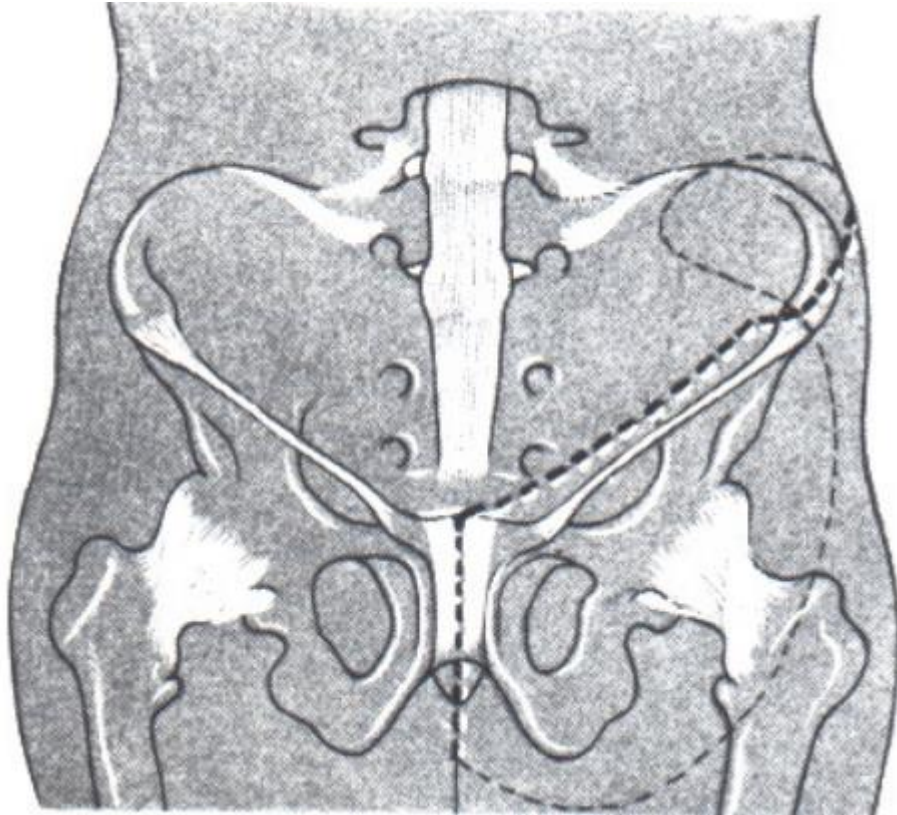
# Amputation in the thigh



# Exarticulation in the hip

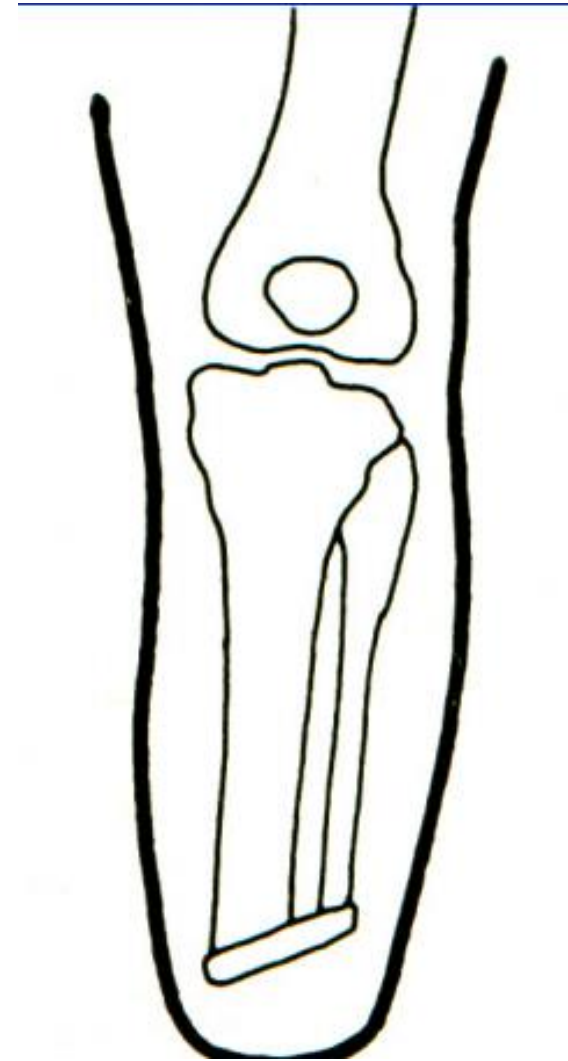


# Hemipelvektomy



# Osteoplastic amputation

- Osteomyocutaneous lobe is added to the amputee stump





# Guillotine – circular amputation

- War surgery
- Intersectes all tissues in one plane
- Mordant without sewing
- Requires reamputation – two-stroke amputation

# Myoplastic amputation

- Lobe cuts
- Stairline inters inters interses

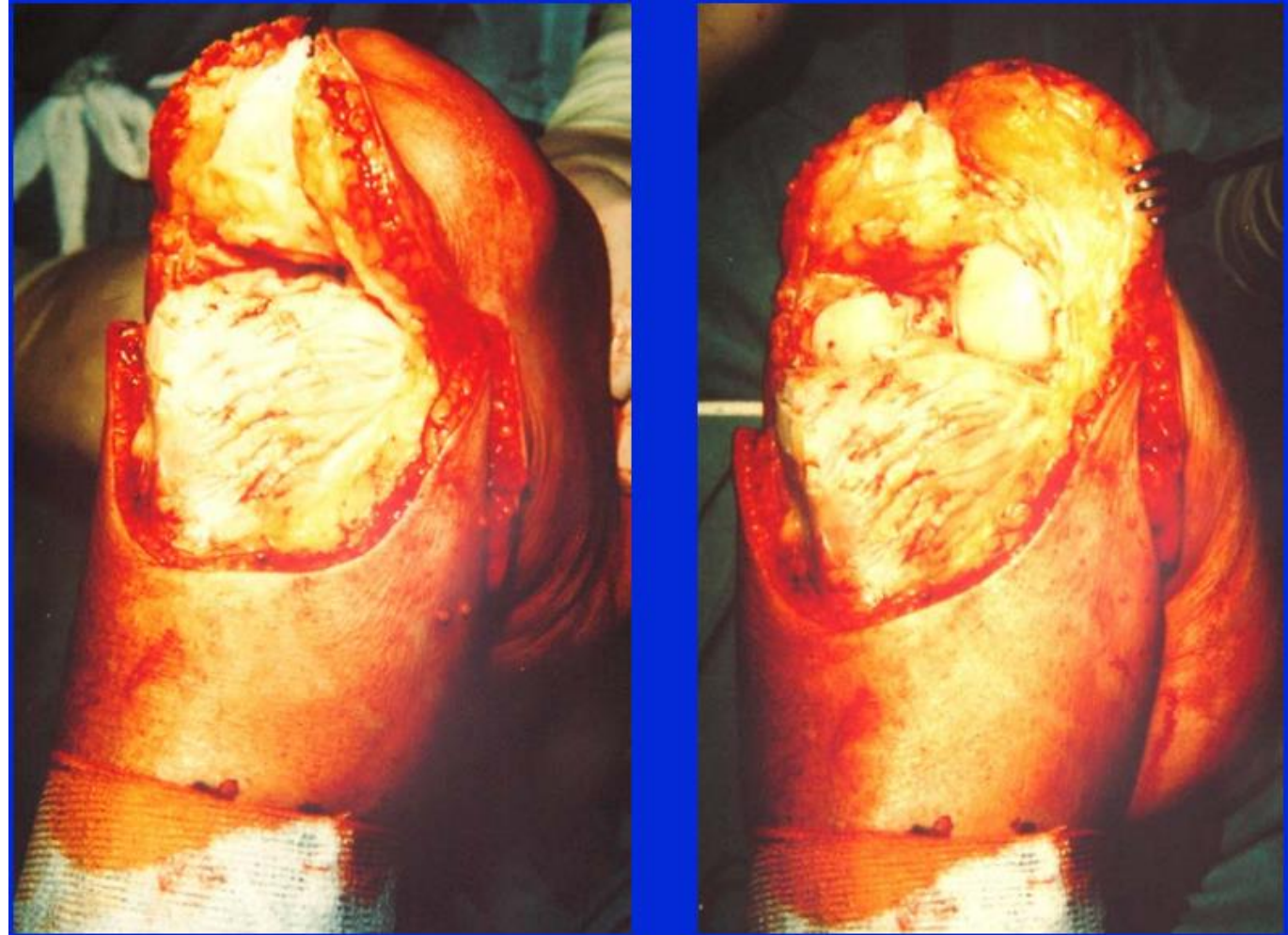
# Exarticulation in the knee

Skin  
incision



# Exarticulation in the knee

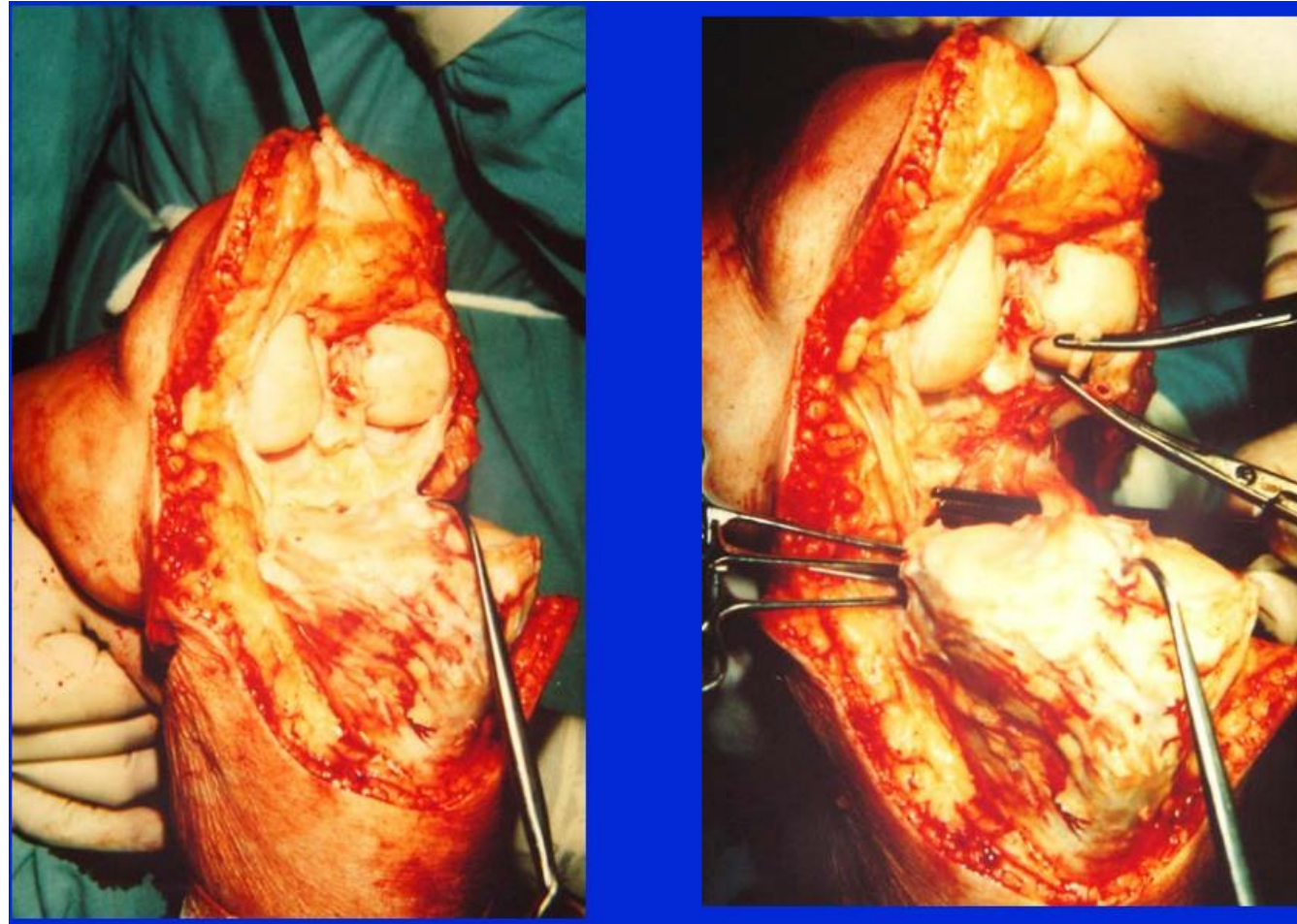
Tilting of the patella,  
discise of the joint  
housing





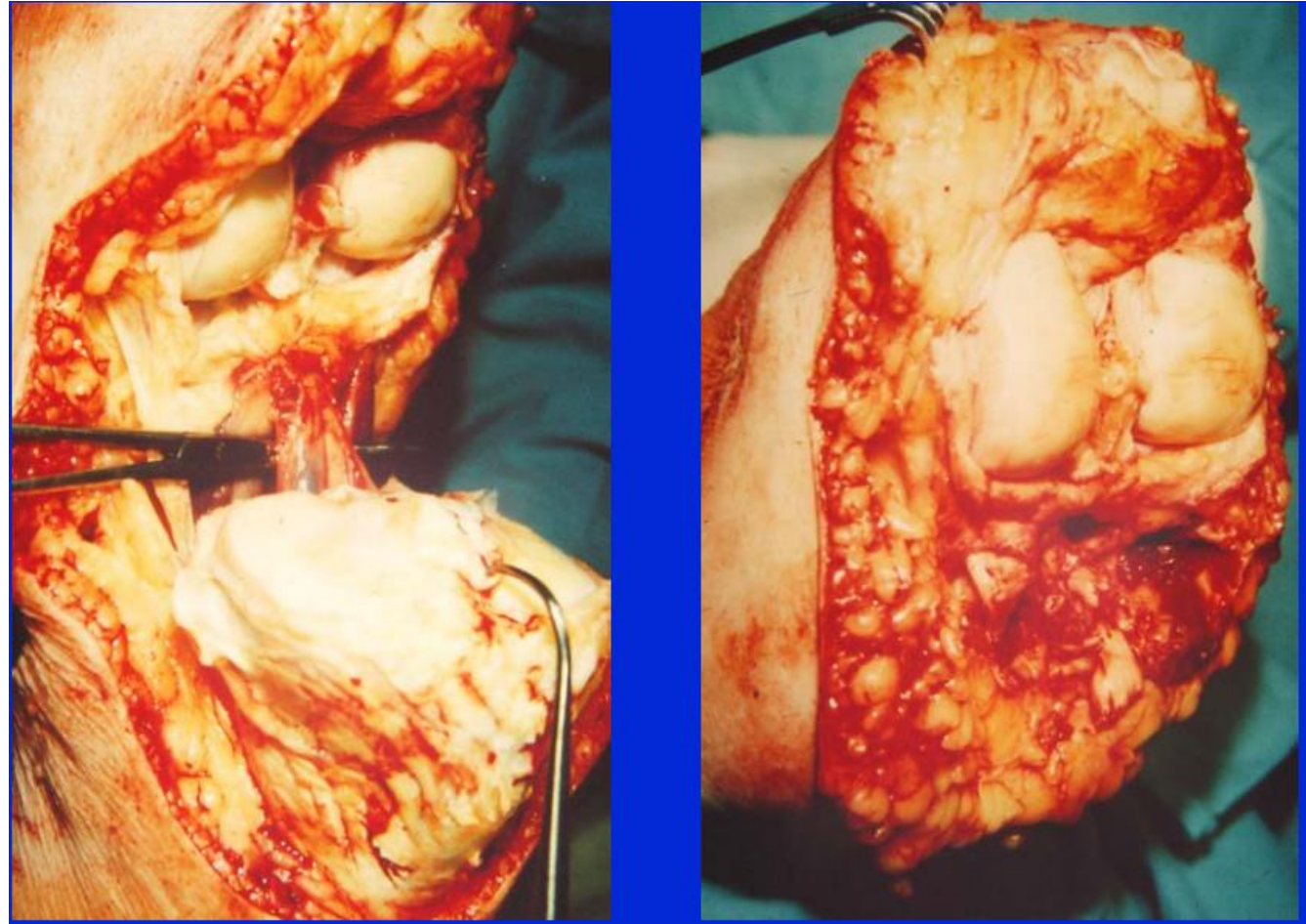
# Exarticulation in the knee

Ceding of the posterior joint housing and n. tibialis



# Exarticulation in the knee

- Garter of popliteal vessels
- separation of the limb

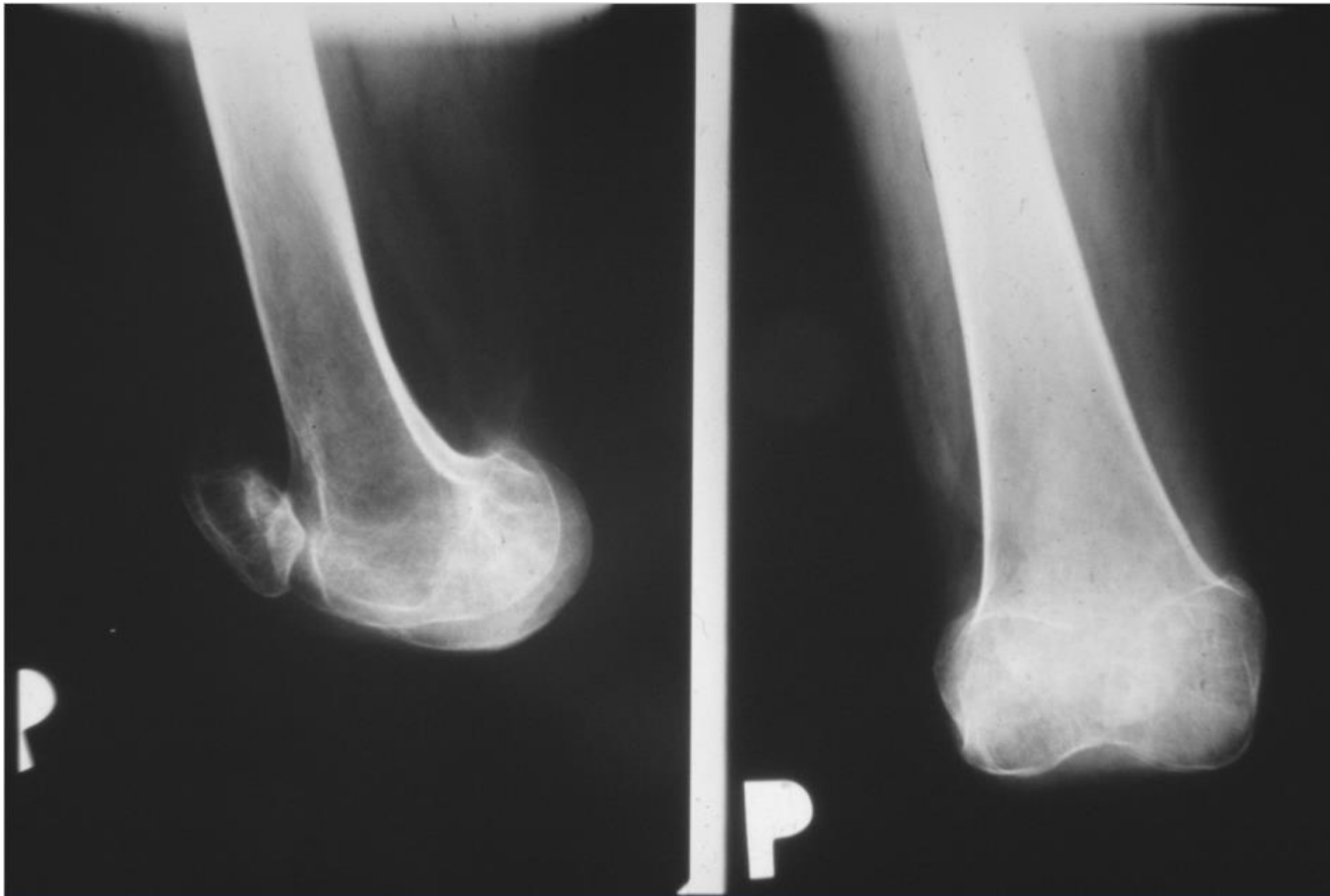


# Exarticulation in the knee

- Sufficient soft tissues
- Suture wound without tension











# Postoperative care

- Shaping the stump with an elastic bandage
- Positioning
- Prevention of spot contracture
- Proprioception
- Exercises on the verticalization bed



# Goal

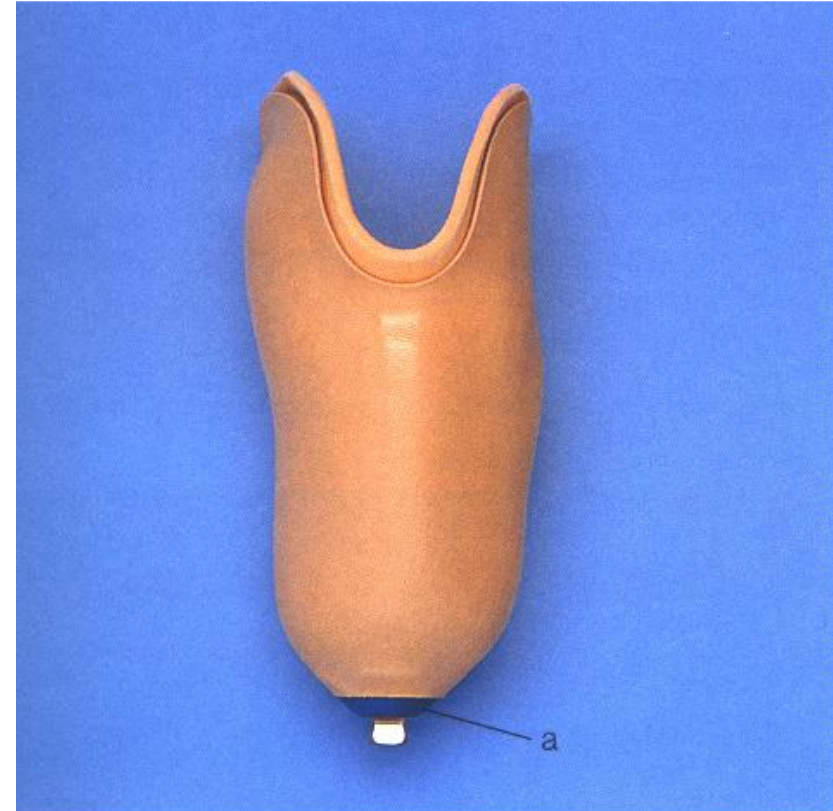
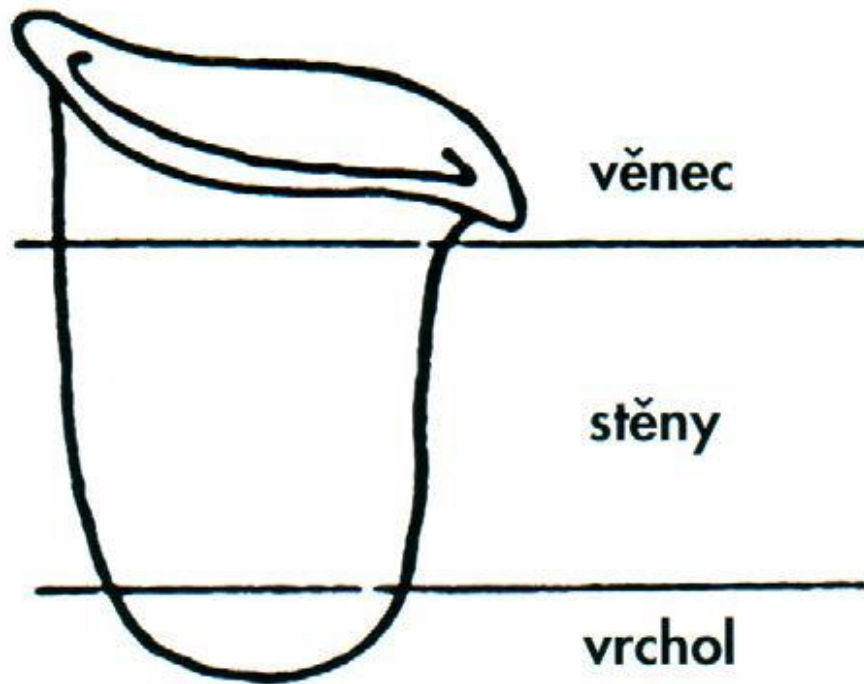
- High-quality tinge-type supporting stump
- Large surface
- Sufficient soft tissues
- Strong musculature
- Muscle balance

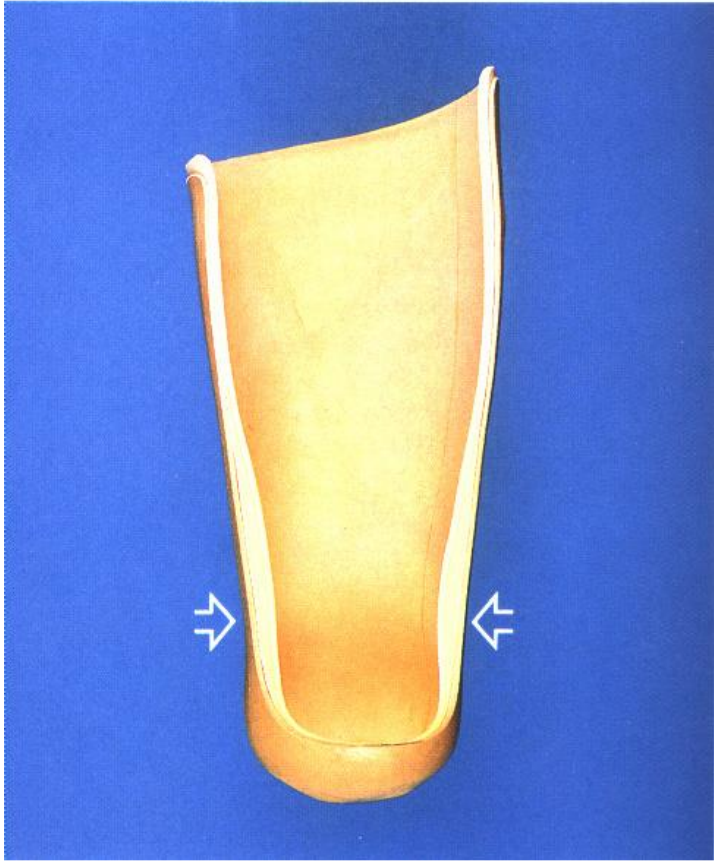






# Prostheticis





# Interface material

- **Hard socket with ply socks or nylon**
  - **Themoplastic**
- **Gel Liner**
- **Soft inserts**
  - **Pelite (foam)**



## Shaping stumps

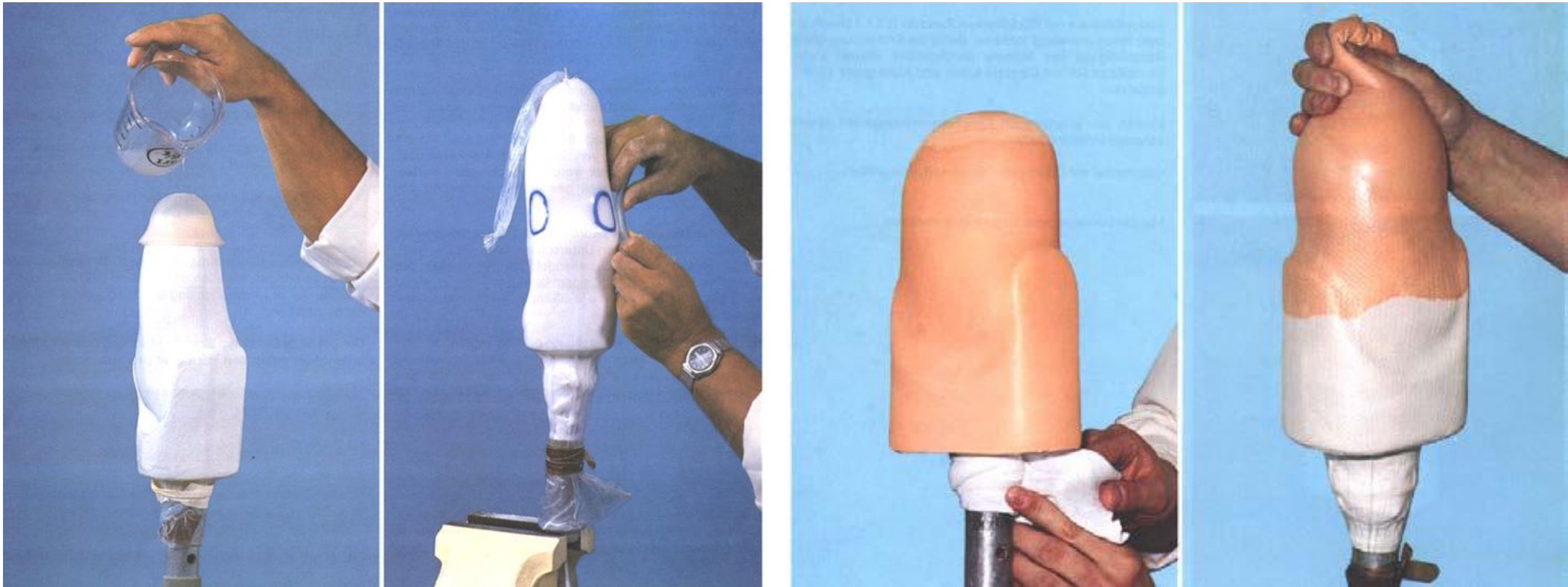




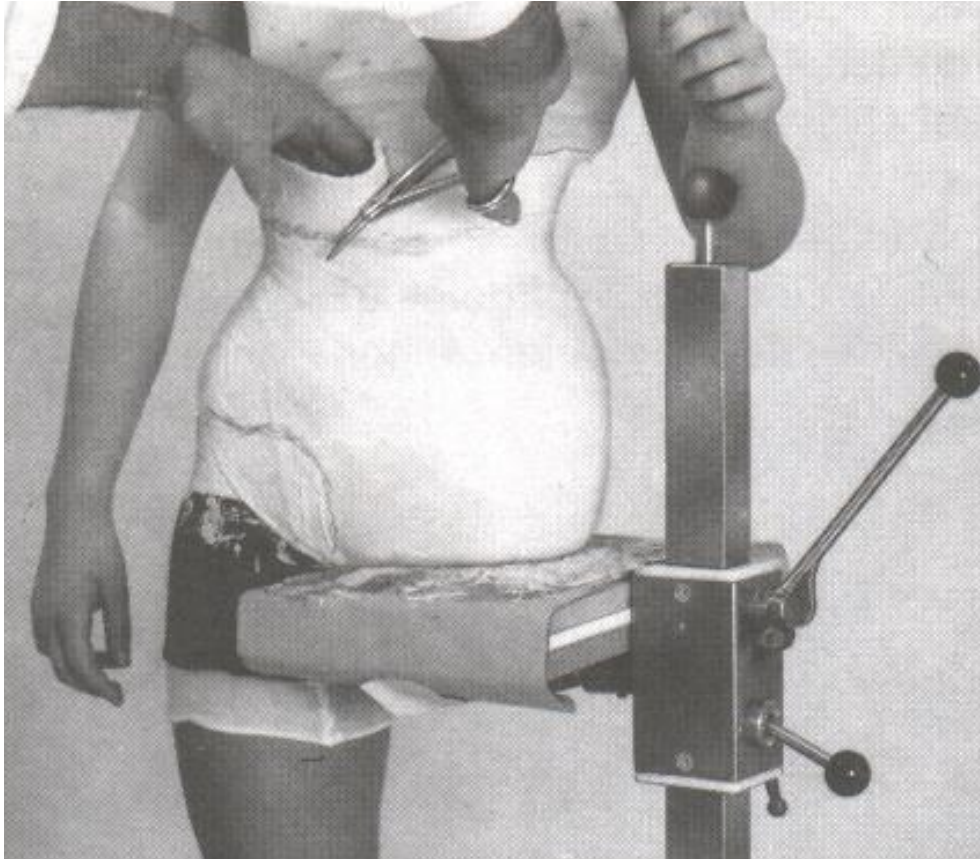
# Production of prosthesis



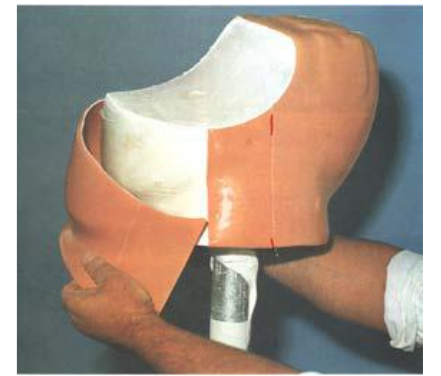
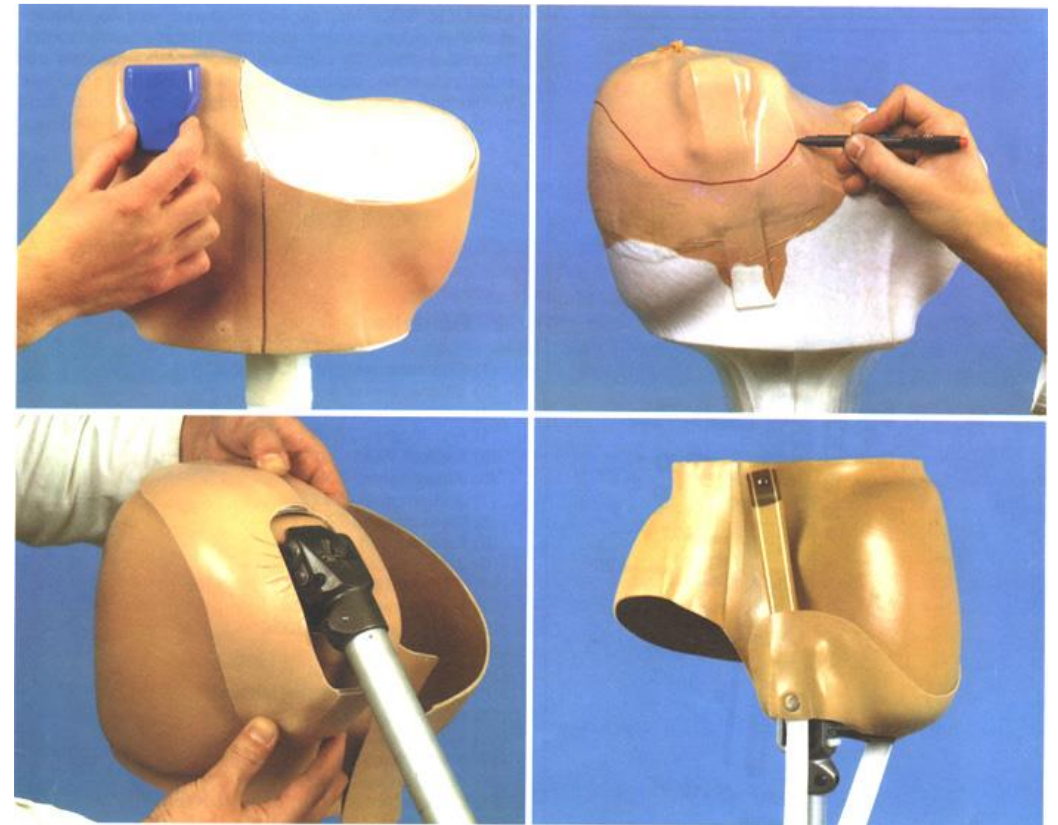
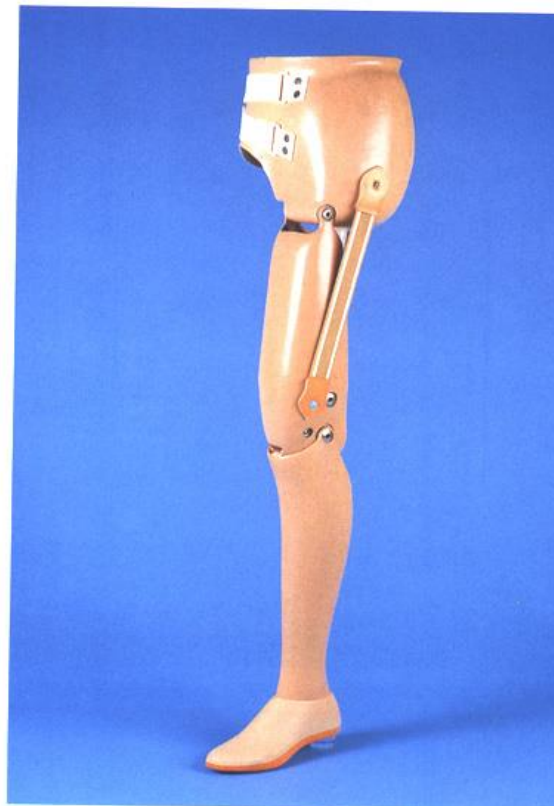
# Production of prosthesis



# Production of prostheses









(1) Mittellager: Oberschenkelstumpf



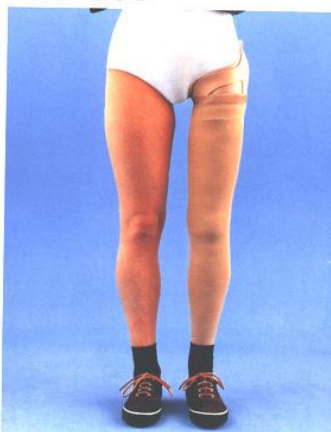
(2) Zum Ansetzen der Prothese wird der Stumpf mit Hilfe eines Trichterch auches in die Stumpfbettung eingezogen



Klauen: Oberschenkelstumpf



(3) Zum Ansetzen der Prothese wird der Stumpf mit Hilfe eines Trichterch auches in die Stumpfbettung eingezogen





# Prosthetics

Construction – module



# Rehabilitation

- Stump stiffness
- Proprioception
- Fitness exercises
- Coordination training
- Walk







# Zdroje

publikace LF MU, doc. Ivan Müller, CSc., doc. Z. Rozkydal, Internet

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