

Exercise therapy after amputation

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Physiotherapy after amputation

Management for amputees:

Prescription

Prosthetic fabrication

Rehabilitation

Pain management

Social care

Occupation

Psychology

Only 70 % of amputees use effectively the prosthesis

Indication for amputation

Vascular problem- severe ischemia

Severe diabetic macroangiopathy

Severe trauma – no chance for reconstruction

Severe infection with sepsis in urgent cases

Malignant tumors

Neuropathies leading to deep trophic ulcers

Congenital abnormalities – useless parts of the limb

The amputee has to meet certain criteria:
physical, psychological and social

Prosthesis is controlled by the strength of muscles
of the residual limb

Ambulation with the prosthesis is more demanding:

Oxygen expenditure is 400 times greater than
in bipedal locomotion

Low physical condition is contraindication for prosthesis:

- ischemic heart disease
- severe asthma
- decompensated hypertension etc.

Functional prosthesis

Basic requirements is the shape and the length of the residual limb
Certain minimal length of the residual limb is required
The longer residual length the greater the strength

The thigh: optimal length for the residual limb is
approximately $\frac{1}{3}$ of the length of the femur

Distal part of the residual limb has to be conical in shape

Myoplastic amputation ensures maximum muscle coverage
of the residual limb

The residual limb develops usually for one year-
- atrophy of muscles

Physiotherapy

Bandaging with elastic wraps into conical shape

Management of postoperative oedema

Limb positioning- to prevent flexion contracture

Brushing- to restore skin sensitivity

Temperature tolerance- alternating streams of warm and cold water

Passive movements

Active movements

Movement imaging- exercise with the opposite extremity and
doing the same in mind with affected limb

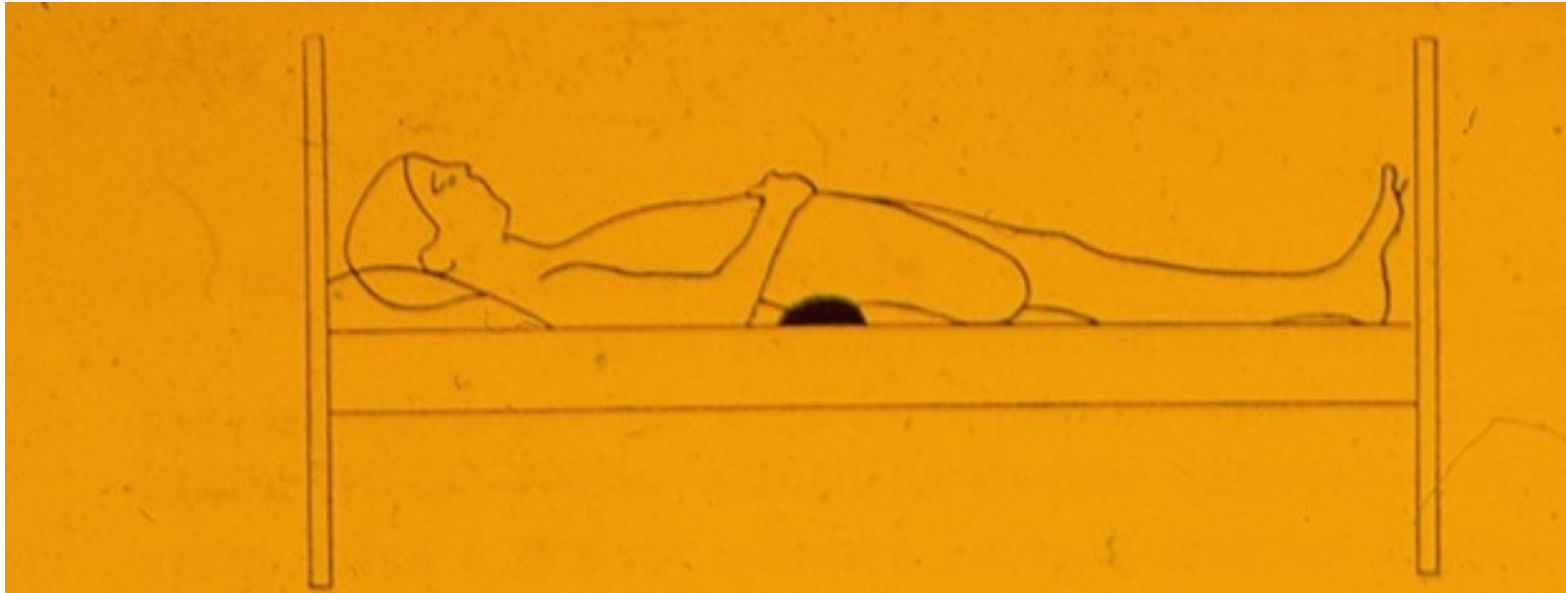
Verticalisation- crutches, platform walkers, parallel bars

Balance training

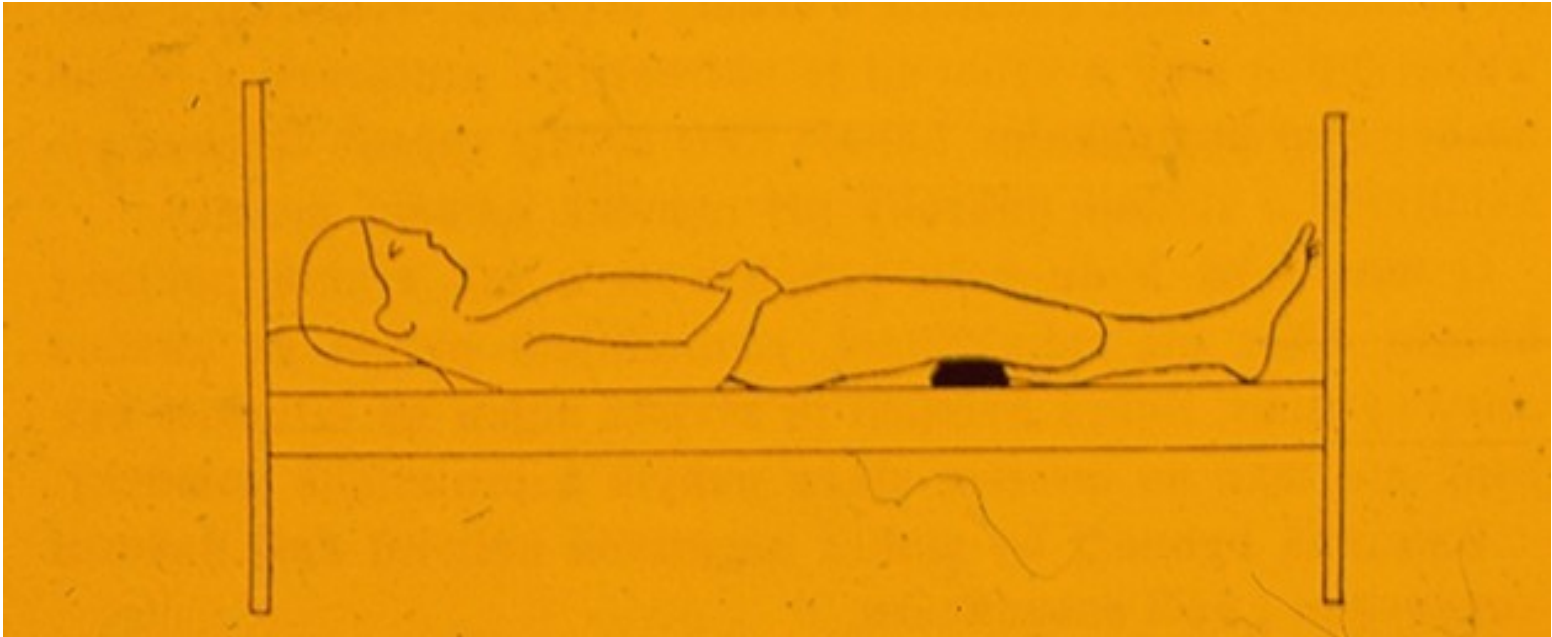
Gait training: according to the age, concomitant disease, overall fitness.

Bandaging





Positioning after above knee amputation



Positioning after below knee amputation

Prescription of the prosthesis

Surgeon

Orthopaedic surgeon

Rehabilitation physician

Neurologist

Initial prosthetic fitting

Final prosthetic fitting – after 6-12 months

Standard prosthesis is changed after 2 years

Repairs and modifications- covered by insurance company

Prescription of the prosthesis

5 categories of amputees

according to patient's potential functional abilities

The prosthesis has to meet patient's needs

Different technical fabrication

Selection of individual components

Patient's history

Patient's current condition

Patient's positive motivation for the use of prosthesis

Functional indication of the prosthesis according to activity of the patient

Degree of activity 0 : non ambulatory, cosmetic accessory

Degree of activity 1 : household ambulation

Degree of activity 2 : limited community ambulation

Degree of activity 3: unlimited community ambulation
ability to work in light duty positions

Degree of activity 4: unlimited community ambulation
fully working individuals with special needs

Fabrication of the prosthesis is made according to the activity of the patient.

Special sport prostheses are not paid by insurance companies!

Complications of the amputation

Wound healing problem

Infection

Necrosis

Dermatitis

Allergic reaction of the skin

Skin erosions

Pressure sores

Neuroma – prevention: perpendicular transection of the nerve

Phantom pain - unpleasant feeling of amputated part of the limb



Summary

Rehabilitation, psychology and adequate prosthetic fitting is prerequisite for acceptable life comfort of the amputee