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 expediture 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 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 developes 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- cruthes, platform walkers, paraler bars Balance training Gait training: according to the age, concomitant disease, overall fitness. Bandaging





Positioning after above knee amputation



Positioning after bellow 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 accesory 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 Alergic reaction of the skin Skin erosions Pressure sores Neuroma – prevention: per



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 prerequisity for acceptable life comfort of the amputee