

Amputee Rehabilitation

Online Course: [Papel De La Fisioterapia En Covid-19](#)

Online Course: [Managing Children with Cerebral Palsy](#)

Online Course: [Lower Limb Amputee Assessment and Post-op Management](#)

Introduction

The loss of a lower limb has severe implications for a person's mobility, and ability to perform activities of daily living.^{[1][2]} This negatively impacts their participation and integration into society.^[3] The ultimate goal of rehabilitation after limb loss is to ambulate successfully with the use of a prosthesis^[4] and to return to a high level of social reintegration. However, many individuals after lower limb amputation have "poor physical function and psychosocial outcomes".^[5] These outcomes can be exacerbated "by under informed prosthesis-user expectations for function with a prosthesis."^[5] Prosthetic rehabilitation is a complex task that ideally requires input from a transdisciplinary rehabilitation team. However, most often physiotherapists are in charge of the physical rehabilitation process.^[6]

Overview of the Rehabilitation Process

The rehabilitation process of the lower limb amputee consists of nine phases,^[7] namely:^[8]

1. Pre-operative
2. Amputation surgery
3. Acute post-surgical
4. Pre-prosthetic
5. Prosthetic prescription
6. Prosthetic training
7. Community integration
8. Vocational rehabilitation and
9. Follow up

Table 1: Phases of amputee rehabilitation: Modified from Esquenazi & Meier^[9] cited in Esquenazi^[7].

Phase	Hallmark	Li
Pre-Operative	Assess body condition, patient education, surgical level discussion, postoperative prosthetic plans	As
Amputation Surgery/Reconstruction	Length, myoplastic closure, soft tissue coverage, nerve, handling, rigid dressing	
Acute Post-Surgical	Wound healing, pain control, proximal body motion, emotional support	
Pre-Prosthetic	Shaping, shrinking, increase muscle strength, restore patient locus of control	Pr
Prosthetic Prescription	Team consensus on prosthetic prescription and fabrication	Pr
Prosthetic Training	Increase prosthetic wearing and functional utilisation	Ca
Community Integration	Resumption of roles in family and community activities. Emotional equilibrium and healthy coping strategies. Recreational activities.	
Vocational Rehabilitation	Assess and plan vocational activities for the future. May need further education, training or job modification.	
Follow-up	Life-long prosthetic, functional, medical assessment and emotional support	

Throughout all of these phases, a rehabilitation treatment plan is utilised to guide the care of an individual who has undergone an amputation. The treatment plan is based on an evaluation by all [specialties involved in the rehabilitation process](#) and acts as a guide for all team members to address goals important to the patient and family. The level of rehabilitation intervention is contemplated from the date of admission to the hospital and determined after the amputation surgery and prior to discharge from the hospital. The rehabilitative process includes:

- Ongoing medical assessment of impairments, and
- Therapy interventions to address disabilities or activity limitation

Below we define this more detailed team-focused rehabilitation process in 8 phases:

Journey	The Team Management	Physiotherapy Management
Pre-Operative	Subjective assessment - History of present condition; Past medical history; Drug history; Social History. Objective assessment - Range of movement (ROM); Muscle power; Limb for amputation; Pulses; Skin integrity.	The focus is on the objective assessment looking muscle power. Using assessment findings, knowl prosthetic componentry and gait patterns, provi reasoned recommended level of amputation to t

	Collaborating all findings to decide on the most appropriate level of amputation for the individual and, if they are likely to become a limb wearer, which level of amputation would be most appropriate.	Provide patient with appropriate exercises to aid amputation mobility.
Amputation surgery/reconstruction	Amputation surgery and reconstruction is the responsibility of the surgeon.	
Post-operative	Medical care; Wound care; Discharge planning; Rigid dressing used rigid material such as plaster of Paris applied immediately after surgery and kept in place for 5-7 days (only for below knee and below elbow).	Post-operative chest physiotherapy. Transfer pre-operative specific exercises to improve strength; increase endurance; tolerance; maintain ROM.
Prosthetic fabrication	Monitoring patient progress; counselling if required; Patient goals; deciding on prosthetic prescription with the whole team and all appropriate information [including how the patient has managed with Early walking aids (EWA) and patient goals]	Early walking aids (EWA) can be used to help determine patient's suitability for a prosthetic limb. Exercise therapy to prepare the limb for a prosthetic. Liaison with the whole team regarding pre-fitting management of the amputee.
Prosthetic prescription	Casting and measuring - Prosthetists cast and measure a patient's residuum. Fitting of the prosthesis - Prosthetists fit the primary prosthesis to the patient, ensuring the alignment and length are correct in standing and walking.	The physiotherapist may be needed to assist in the fitting appointment, to ensure a neutral alignment of the limb is obtained. Physiotherapy provides intervention on mobility, static balance and weight-bearing.
Gait Training	Prosthetists will help problem solve and adjust prosthesis as required.	The physiotherapist takes a lead role at this stage with educating the patient about donning and doffing the prosthesis, skin integrity and weight-bearing are assessed on the residuum. A gait rehabilitation programme can then commence.
Discharge planning	The occupational therapists take a large role in this phase to aid the resumption of roles in family, recreational and community activities. They will also assist with vocational rehabilitation by assessing and planning vocational activities for the future. May need further education, training or job modification. Counsellors will be involved with emotional equilibrium and healthy coping strategies.	The physiotherapist should ensure that they include education for ongoing management, strategies for training for resuming functional activities.
Follow up	Patient will be reviewed regularly by the consultant the physiotherapist, and the prosthetic team. Assessing the individual is still suitable for prosthetic use, the prosthetic prescription is still the most appropriate option for the patient and any required changes are made to the prosthesis as the patient changes.	The consultant and/or prosthetist may ask for physiotherapy input. For example, if the patient is having a change in prescription, their goals have changed, their mobility has decreased/increased. The physiotherapist may be required to re-commence a gait rehabilitation programme with the patient or advice only may be required.