National MajorTrauma Rehabilitation Group

NMTRG Guidelines for the assessment and rehabilitation of the Major Trauma patient

Discipline: Therapies (Physiotherapy, Occupational Therapy, Dietetics)

Guideline: Lower limb amputation Physiotherapy and Occupational Therapy

The Physiotherapist and Occupational therapist should have a working knowledge of:

- Lower limb anatomy and biomechanics
- Lower limb nervous and vascular system
- Reconstruction surgery including plastics involvement e.g. flaps
- Rehabilitation expectations.

And a knowledge of:

- Levels of amputation and impact on rehabilitation
- Outcome measures – BLART/ BAMS/ AMPRO
- Management of residual limb wound healing
- Compression therapy and oedema management
- Prevention of contractures
- Possible complications
- Pain management
- Phantom sensation and pain (Inclusive of scar management)
- Measuring and issuing a wheelchair with accessories; risk assessment
- Exercise programme e.g., PIRPAGs
- Earlier mobilisation e.g., PPAM aid / Femurett
- Transfer techniques
- Hoist techniques for amputees and specialist amputee slings
- The impact of cognitive impairment
- Falls management
- Local amputee rehabilitation services (including prosthetics)
- Social services and major adaptation services
- The psychological and socio-economic impact of lower limb amputation.

The Physiotherapist and Occupational Therapist should be able to identify problems associated with lower limb amputation and escalate if required, including:

- Swelling and oedema management
- Wound/ dressing issues
- Pain
- Contractures
- Sensory changes
- Neurovascular compromise
- Signs of infection
- Complications and restrictions of movement following amputation
- The impact of other injuries on short term and long term functional potential ability
- Consulting with Orthopaedic/ Plastics Team on the level of amputation and management of other orthopaedic injuries that will impact patients long term rehabilitation recovery.

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The Physiotherapist and Occupational therapist should discuss and action as required:

- Amputee rehabilitation pathways
- Pain management
- Psychological management; body image and grief cycle
- Recovery timescales
- Energy conservation
- The impact of amputation on daily life, for example, work, hobbies, personal care, activities, education, transport and relationships
- Environmental adaptation and equipment recommendations
- Diet and lifestyle choice; the impact on healing

Pre-operative phase:

- A pre-operative assessment is recommended for all amputee patients (if possible, post-trauma e.g. following limb salvage attempts).
- Pre-operative assessment should be a holistic biopsychosocial assessment

- An initial interview including:

- Social history
- Social support for patient

- Pre-admission status / baseline mobility and functional level
- Psychosocial review including risk factors
- Social role including employment, hobbies, smoker status, alcohol and drug dependence, support network and driver status.

- A physical assessment including:

- Neurovascular status
- Pain assessment
- Upper Limb and lower Limb Range of motion and power
- Bed mobility / transfers as able
- Wheelchair measurement
- Initial exercise programme
- Assessment and treatment of other injuries as appropriate

- All patients should be provided with advice on:

- Strategies to help with the management and adjustment to living with an amputation
- Pain management / education
- Phantom limb; sensation and pain
- Post-operative expectations (transferring out of bed to wheelchair on day one)
- Smoking cessation, as appropriate
- Falls prevention
- Post op mobility e.g., wheelchair
- Rehabilitation expectations (+/- prosthetic limb use)
- Goal setting
- Clothing adaptations

- Stump care
- Diet advice and education
- Driving
- Vocation
- Physical activity and leisure activity as appropriate

- All patients should be provided with written information on lower limb amputation, phantom pain and an exercise programme.

Inpatient phase:

All patients should be seen Day 1 post operatively. Including:

- Pain assessment and management, with support from MDT
- Review of the physical, and psychological status of the patient
- Physiotherapy exercise programme e.g., PIRPAG
- Occupational therapy safety education and loan wheelchair issue. Complete onward referral to wheelchair services
- Cognitive screen if / when appropriate throughout inpatient phase

- A functional assessment should be completed by the Therapist as appropriate including;
- Bed/Chair/Toilet/ Car transfers/ Kitchen assessment
- Washing and dressing
- Toileting
- Wheelchair mobility practice and education
- Environmental / Home visits to assess for wheelchair access and equipment or adaptation as required.

The objectives of treatment in this phase are to:

- Establish a safe transfer method
- Maintain range of movement, muscle, balance, and core strength
- Maintain functional independence
- Minimise contractures
- Be aware of psychological problems including body dysmorphia, and provide appropriate support
- Educate patients/ carers on exercise programme
- Educate the patient re: wound care and stump massage to prevent hypersensitivity
- Educate the patient on falls strategy and teach on/off floor as appropriate
- Support engagement of the patient in meaningful occupational roles (eg. Parenting, vocational)

The following techniques should be utilised to develop the following:

- Graduated exercise programme e.g., PIRPAG exercises
- Pain management
- Swelling and oedema management (Compression socks; important to liaise with the surgical team for flap precautions and suitability).
- Use of early walking aid e.g. PPAM aid / Femurett
- Gym rehab working on single leg balance, high-level core, glutes, and upper body strengthening
- Transfer practice within different environments

- Wheelchair mobility; Indoors / outdoors to negotiate curbs and different gradients.
- Goal setting
- Patient and carer / family education

Before discharge from hospital:

- Permanent wheelchair should be issued / ordered
- Safe transfer method established
- Compression sock provided / ordered
- Occupational therapist to complete environmental visit
- Relevant equipment to be in place as recommended from environmental visit
- Where possible, an Occupational Therapy discharge home visit should be completed on day of discharge
- Complete onward referral to relevant community services; Social services, major adaptations team
- Signpost to support groups

Patients should be:

- Independent with their exercises programme
- Understand stump hygiene care and be able to recognise the signs of infection
- Aware of who / when to ask for help
- All patients should be discharged with an on-going rehabilitation plan and appropriate onward referral (Local amputee rehab facility - inpatient vs outpatient)
- Prosthetics referral
- All amputees transferred to another hospital should be sent with a rehab prescription and a verbal handover completed.

Outpatient phase:

- Lower limb amputation rehabilitation provided by Physiotherapist and Occupational therapist should include:
  - Goal setting
  - Exercise programme to increase movement, strength, balance, and exercise tolerance
  - Optimising functional abilities using PPAMAID / Prosthetics and gait re-education
  - Functional and leisure activities
  - Group education sessions – smoking cessation / activities of daily living / diet / pain / psychological support / benefits / relaxation and mindfulness
  - Peer support
  - Psychological screening and management, including appropriate onward referral
  - Social integration
  - Vocational rehabilitation
  - Therapy should be in-line with up-to-date evidence-based practice
  - Therapy team to be proactive in leading service improvement and audit projects, including patient engagement to develop best practice.

- Optimising functional abilities using early walking aids such as femurett or PPAMAID / Prosthetics and gait re-education in conjunction with local limb centre therapy teams as appropriate,

- Driving education as per local centre guidelines

- The rehabilitation plan should be reviewed at key stages such as:
  - prosthetic limb fitting
  - the return to education, work, or community activities. This should include signposting to relevant bodies e.g. physical activity initiatives
  - readmission due to complications or for further surgery.

The Physiotherapist and Occupational therapist should have knowledge of additional services including as well as how to refer to appropriate including;

- Prosthetics
- Wheelchair services
- Psychological support
- Pain management
- Major adaptations
- Social services
- Musculoskeletal physiotherapy
- District nursing for wound care
- Orthotics
- Dietetics as indicated for nutritional support/ wound healing
- Signposting for smoking cessation
- Local support groups for amputee +/- post trauma
- Signposting to physical activity charities e.g. limb power
- Falls prevention / community referral if appropriate
- Addiction services
- Citizen's advice
- Legal support sign-posting

Dietetics

Amputee patients have an increased energy requirement for healing, rehabilitation and prosthetic use and therefore benefit from a referral to a dietitian. A nutritional screening tool such as the Malnutrition Universal Screening Tool (MUST) should be used to identify patients at risk of malnutrition. Please refer to local policies of when to refer to a dietitian. All patients receiving nutrition via a feeding tube e.g. NG or PEG should be under the care of a dietitian

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