Reconstructive Amputation

Residual Limb Management after Traumatic Amputation

Presented by Fiona Barnett
Reconstruction required...
“Amputation must be viewed as a reconstructive procedure, and the postoperative protocol must be designed to enhance the functional potential of persons forced to undergo this physically and emotionally difficult surgery.”

Source: Journal of Prosthetics and Orthotics 2004; Vol 16, Num 3S, p 2
Guidelines for Amputee Care

– Phases of care

- Pre-Operative
  - The pre-operative phase begins with the decision of whether to amputate and continues up to the point of surgery.

- Surgical
  - The surgical phase includes all issues relating to the amputation surgery.

- Post Surgical
  - The post-surgical phase incorporates the patient’s journey from immediately post-operatively until the patient is ready for rehabilitation.

- Rehabilitation
  - The Rehabilitation phase aims to improve functional status with or without a prosthesis, and to successfully reintegrate the patient into their community. Comprehensive rehabilitation of the person with an amputation must take into account the whole person, their goals and ambitions.

- Rehabilitation with a prosthesis
  - This phase comprises all elements of prosthetic rehabilitation.

- Life Long Management
  - This phase acknowledges the fact that the patient will be a service consumer for the remainder of their life and any guidelines should reflect life long management issues.
Reconstructive & Rehabilitation Team

- Surgeon
- Rehab Physician
- Ward Rehab Nurses
- Physio
- Occupational Therapist
- Prosthetist
- Case Manager ??
- Social Worker
- Psychologist
- Head Rehab C.N.C. Nurse
- Rehab Registrars
Guidelines for Amputee Care

phases of care

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What is needed in these phases of care?

- Ensure good wound healing
- Reduce oedema in residual limb
- Pain reduction
- Shape residuum
- Protection of residuum from external stresses
- Prevent contractures
- Prepare for prosthetic management/ambulation
  - De-sensitization
Post Surgical Phase

• **Wound Healing – oedema**
  - Inflammatory response
    • Oedema exudate forms
      - Fluids from the medullary bone bleeding, tissue exudate and blood loss form oedema exudate

**Potential Harmful effects of oedema:**
  - Delays wound healing
    • Increases interstitial pressure
  - Increased risk of infection
  - Induces the onset of pain
  - Decreased capacity for venous return
    • Pre existing vessel disease
    • Incision to vessels
    • Cut muscles
  - Immobility
Stump Volume

• 1 week post op- volume is at its peak
• 1-2 weeks – decreased oedema and some tissue atrophy
• 2-3 weeks oedema resolved, tissue atrophy
• **If you can limit the initial volume**
  − ↓ *the rate change over time*
  − ↑ *wound healing*
Reduction of Oedema & Promotion of Wound Healing

- Can be achieved through the use of RRD & compression therapy.

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Rehabilitation

• Residual limb activity
  – Muscle activity
  – Desensitization of residuum
  – Endurance development

• Core stability
  - single limb support

• NB: As clinicians our focus is on supporting the client to achieve their personal goals.
  – Which may or may not include a prosthesis
Rehabilitation with a prosthesis:

- **Early mobilisation**
  - Promotes healing through circulation and decreased oedema, enhances collagen formation
  - Promotes emotional well being through a sense of progress.
Summary:

- Amputation is a reconstructive surgery
  - Rehabilitation begins at the point of decision to amputate.
- Key areas in the early phases of care are:
  - Oedema Reduction/Stump Volume
  - Wound Healing/Stump Healing
  - Early mobilisation
  - Client centred - Functional restoration goals
Questions?

Thank you

Removable rigid dressings: A retrospective casenote audit to determine the validity of post-amputation application Taylor, L.¹, Cavenett, S.¹,² Stepien-Hulleman, J. ², Crotty, M.² Orthotics Prosthetics South Australia, Repatriation General Hospital ¹.Flinders Centre for Clinical Change and Health Care Research² Proceedings of the 12th World Congress of the International Society for Prosthetics and Orthotics ( Canadian Society of the International Society for Prosthetics and Orthotics: Vancouver, Canada July 29-August 3, 2007 ) 424


Functional Outcome after major lower limb amputation. Johannesson, A, Larsson A Proceedings of the 12th World Congress of the International Society for Prosthetics and Orthotics ( Canadian Society of the International Society for Prosthetics and Orthotics: Vancouver, Canada July 29-August 3, 2007 ) 324