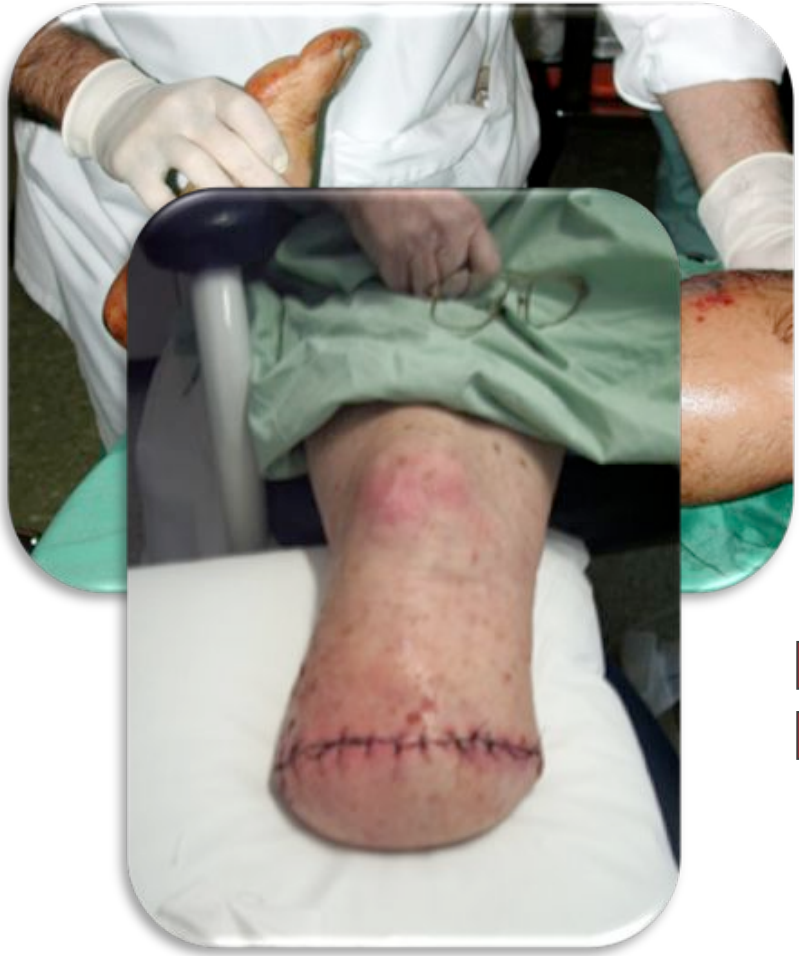
Reconstructive Amputation

Residual Limb Management after Traumatic Amputation

Presented by Fiona Barnett

apc prosthetics

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**
    URL:
    http://www.oandp.com/jpo/library/2004_03S_002.asp

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

Guidelines for Amputee 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

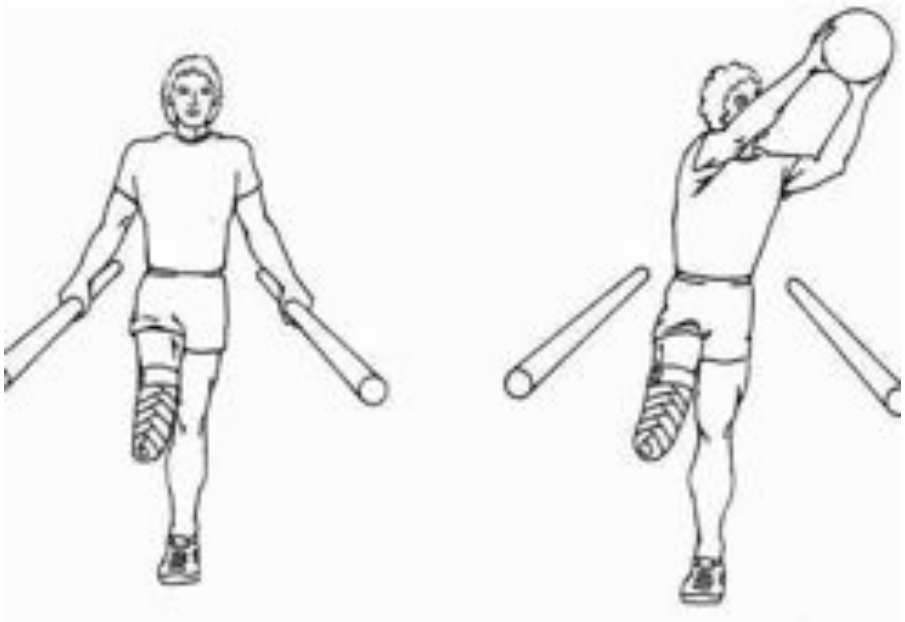
- Can be achieved through the use of RRD & compression therapy.

Rehabilitation

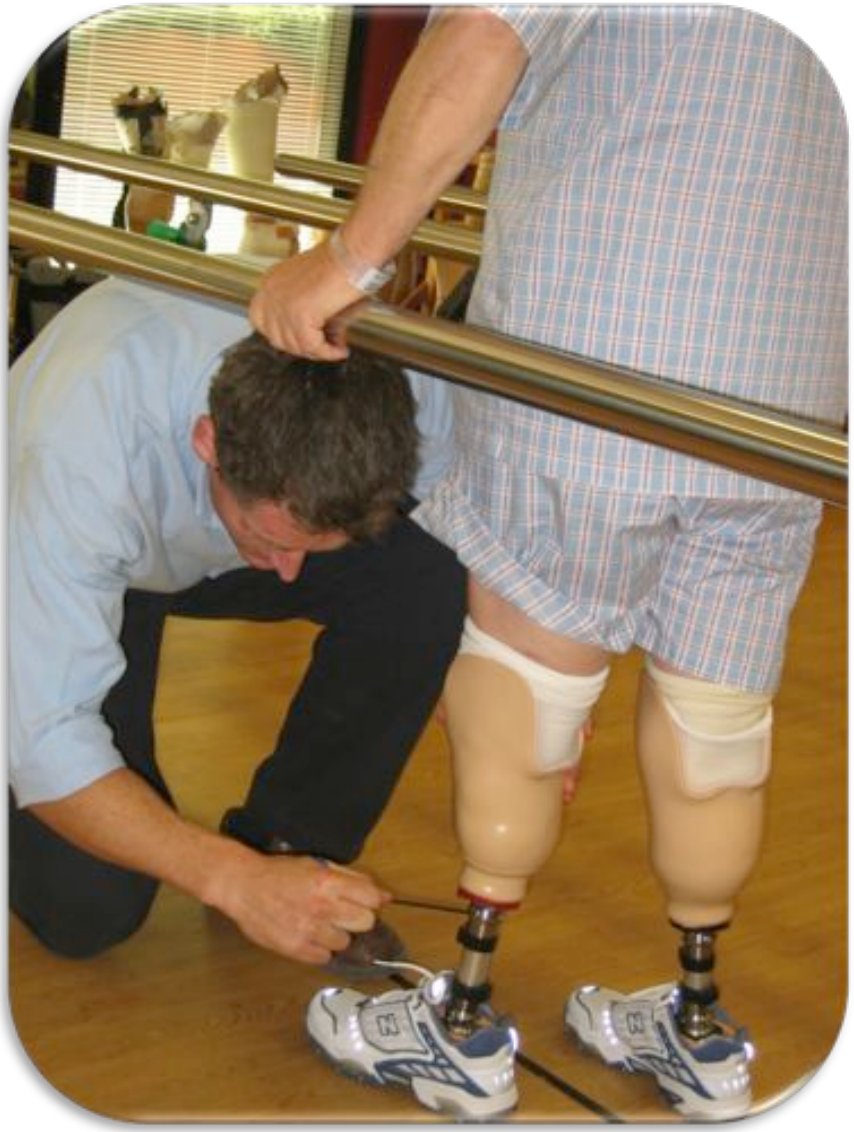
- Residual limb activity
  - Muscle activity
  - Desensitization of residuum
  - Endurance development
- Core stability

  - single limb support

- NB: As clinicians our focus is on supporting the client to achieve there 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

Current literature for RRD:

Removable rigid dressings versus soft dressings: A randomised controlled study with dysvascular trans-tibial amputees. Prosthet Orthot Int;29(2);193-200. Deutsch, A, English, R, Vermeer, T, Murray, P & Condous, M. (2005).

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 Research[2] 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

Experiences in using Post-Op Silicone Liners with Transtibial Amputees. Julia Earle 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) 423

Removable Vacuum Rigid Dressing & early rehabilitation after Transtibial Amputation. Johannesson, A, Larsson G-U 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) 393 & POSTER

ICEX: 10 Year Clinical experience & outcome. Johannesson, A, Larsson G-U 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) 354 & POSTER

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