Occupational Therapy and Upper Limb Amputee Rehabilitation: Occupational Focused Intervention

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Declaration of Conflict

The author and co-authors declare no conflict of interest
Upper Limb Amputation

- The consequences of having an amputation are catastrophic, not only for the individual involved, but also their family and friends (Davidson, 2004)

- Upper limb amputation leads to difficulty performing everyday activities that were previously easy and routine (Schabowsky, et. al. 2008)
Occupational Therapy

- Occupational therapists believe that appropriate engagement in relevant occupations has the potential to structure, shape and transform the lives of individuals (O’Toole, 2011)

- Occupational therapy services are integral to enabling individuals with an amputation to participate in daily tasks (Smur, et al., 2008)

- Occupational therapists are involved in all aspects of rehabilitation
Three stages of Rehabilitation

- **Pre-prosthetic training**
  - Focus on preparing the limb for a prosthesis
  - Address and discuss pain
  - One handed training begins, with a focus on self-care tasks
  - If myo-electric control is expected, myo site training can begin here.

- **Prosthetic control training**
  - Training is focused on gaining control and understanding the prosthesis.
Three stages of Rehabilitation

- ADL or Functional use training
  - Incorporation of the prosthesis into everyday activities
  - Refinement of control of prosthesis
  - Return to productivity and driving
  - One handed training and prosthetic use are balanced to assist the greatest independence

(Celikyol, 1995; Rock & Atkins, 1996)
The OPMA

(Chapparo and Ranka, 2006)
What is the impact of amputation?

(Chapparo and Ranka, 2006)
Component skills

- Bio-mechanical
- Sensory-motor
- Cognition
- Inter-personal
- Intra-personal

“Impairment”
What is the impact of amputation?

(Chapparo and Ranka, 2006)
Categories of Occupation

- Self-maintenance
- Rest
- Leisure
- Productivity

“Activity Participation”
Occupational Roles

- Roles help us apply meaning to our lives
- Amputation impacts our ability to participate in all the tasks and occupations that make up these roles

The role of a father -
- Self-maintenance
- Rest
- Leisure
- Productivity
Top Down

- Occupational therapy is concerned with the performance of everyday tasks.
- Occupations are used not only as the goal, but also the modality of intervention.
- Assessment and treatment of occupations occurs in real world contexts.
- Outcome measures are focused around participation in occupations.

(Mackenzie & O'Toole, 2011)
Functional prosthetic use

- How would the person normally use their limb? (dominant vs non-dominant)
- What are the expectations of the role of the prosthetic limb?
- What are the demands of everyday life?

What are the functional performance goals?
Core principles in training

● Active stabilisation
  - The non-dominant limb is used predominantly as an active stabiliser, the prosthesis (regardless of dominance) is used for this role

● Pre-positioning
  - The wrist and elbow are difficult to activate whilst carrying out a task, and so organising the limb prior to starting the task is important
Core principles in training

- **Task specific use**
  - A prosthesis will be used differently for each task and will not be used for all tasks.

- **Generalisation is planned**
  - The generalisation of skills used in everyday tasks are not spontaneously generalised, so generalisation must be incorporated into treatment plans and goals.
Final Points

- Prosthetic rejection rates for upper limb amputations remains high.
- Occupation based interventions can lead to greater independence in everyday activities.
- Prosthetic use can assist with independence in everyday activities.
- Occupational therapy is key in providing interventions required to maximise function.
Any Questions?
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References


