Key findings

**Literature review:**
- Limited research evidence exists on the role of activity and the effectiveness of weight shifts in reducing interface pressures.
- Limited research evidence suggests that wheelchair users do not self-reposition frequently, thus not reducing interface pressure as often as recommended i.e. every 15 minutes.
- Cost of pressure care could be reduced by adopting a more preventative approach.

**Exploratory study:**
- Only 36% of participants could be assessed as adhering to the National Pressure Ulcer Advisory Panel recommendations of performing a weight shift every 15 minutes.
- Almost half the cohort (43%) performed only one or no weight shifts in the one hour timeframe.
- Most of the weight shifts performed were ineffective in reducing ischial interface pressure. No participant managed to achieve a single weight shift that was assessed as completely unloading the ischial tuberosity and thus enabling full tissue perfusion.
- Forward reaching activity is capable of significantly reducing interface pressures around the ischial region, however, forward reaching activity is not practical/feasible for all spinal cord injured people due to trunk stability issues.
- The angle of trunk tilt during an activity is not a reliable indicator of weight shift activity or of pressure unloading.

**Project aims**

The overarching aim of this study was to provide evidence to support the role of the occupational therapist in enhancing the tissue viability health of spinal cord injured service users.

The project had two main components with the following objectives:

**Work package 1**
1. To review published evidence evaluating the effectiveness of functional activities in reducing seated interface pressure and maintaining tissue viability.

**Work package 2**
2. To explore the current pressure relieving behaviours of a sample of spinal cord injured patients during a one hour period.
3. To investigate whether incorporating a forward lean into a computer based activity reduces pressure between the body and seating surface among this client group.

**Background**

Pressure ulcers are one of the major complications of spinal cord injury (Spinal Injuries Association 2011). Pressure ulcers affect an individual’s ability to participate in daily activities by having a profound impact on their health, rehabilitation, social interaction, education, vocational pursuits and quality of life (Anderson and Karlsmark 2008, Bates-Jensen et al 2009, Ryan 2006, Shapcott and Levy 1999).

Regular repositioning is a key intervention in the prevention of pressure ulcers (Sprigle and Sonenblum 2011). The National Pressure Ulcer Advisory Panel (2007) recommends individuals should be repositioned every 15 minutes to reduce the duration and magnitude of pressure over areas of the body. Within rehabilitation, spinal cord injured wheelchair users are taught to perform weight shift exercises in order to redistribute the build-up of pressure around the ischial tuberosity and sacral regions. Occupational therapists have a key role to play in pressure ulcer prevention and management (Moore and van Etten 2011).
Methodology

Two strands of work were undertaken. A systematic review of the published literature was conducted in order to identify, synthesise and appraise the current evidence base in this area of practice. Nine electronic databases were searched spanning the years 2000-2011 and 24 studies were critically appraised. Secondly, a clinically based cohort study investigated existing pressure reducing behaviours in a cohort of 14 spinal cord injured patients and application of an ergonomically adapted computer-based activity to enhance tissue viability with a cohort of spinal cord injured patients was explored.

Recommendations

- Further work is needed to investigate other methods of improving concordance with weight shifts among at risk population groups.
- Angle of trunk tilt is not a reliable indicator of interface pressure unloading and should not be used as an assessment component.
- Activity that incorporates a forward reach of 150% arm length should be used to support weight shift activity.
- The occupational therapist should maximise their role within preventative tissue viability strategies, particularly, to explore the many opportunities for activity based interventions.
- Further research is required to explore the application of functional activity upon pressure relieving behaviours across all at risk populations.

Publications


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References


