B1: Peer-led wheelchair training improves how older adults in the community use manual wheelchairs

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Learning objectives:

1. Describe the potential benefits of peer-led manual wheelchair training.
2. Define the four sources of self-efficacy that are integrated within a peer-led manual wheelchair training program.
3. Explain how peer-led wheelchair training influenced manual wheelchair skills, self-efficacy and satisfaction with participation in meaningful activities for older adults.

Session description:

Rationale

More than 50% of older adults (50+ years) who use manual wheelchairs (MWC) require assistance getting around.1 Mobility and social participation can be enhanced through MWC training.2 However, due to clinician perceived barriers of time, knowledge and resources,3 older adults receive little to no training upon MWC procurement.4 A peer-led 'Wheelchair Self-efficacy Enhanced training for Use' (WheelSeeU) program is a feasible approach to MWC training for older adults.5 The purpose of this study was to provide effect size estimates of WheelSeeU on MWC outcomes.

Method

In a RCT, 40 community-living MWC users (40% female; 65y) with mobility goals were recruited. The experimental group (n=18) received 6x1.5 hours of WheelSeeU, a goal-oriented, peer-led MWC training program that enhanced self-efficacy to pairs of MWC users through skills mastery, vicarious learning, verbal persuasion, and reinterpretation of physiological symptoms. The control group (n=22) completed 6x1.5 hours of iWheel, a professional-led didactic informative program about community MWC use. Outcomes included: MWC skills (capacity; performance), MWC use self-efficacy, and satisfaction with participation.

Results

A mixed-model ANOVA revealed statistically significant group x time interaction effects for subjective MWC skills performance (Cohen's d=0.70; p=0.04) and a trend towards improvement in MWC skills capacity (Cohen's d=0.55; p=0.09). Group x time interactions were not statistically significant for objective MWC skills capacity (p=0.24), MWC use self-efficacy (p=0.13), or satisfaction with participation (p=0.71). Participants in both groups experienced statistically significant within-subject increases in satisfaction with participation from baseline to post-intervention. Improvements in subjective MWC skills capacity and performance and satisfaction with participation remained 3 months later. Conclusion. Peer-led MWC training may be a promising strategy to accommodate training needs of older MWC users. However, goal setting and didactic information may also positively influence MWC outcomes. Further evaluation is needed to examine how to best provide older adults with community-based MWC training.

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B2: Can wheelchair propulsion training improve wheeling biomechanics in aging adults? A randomized controlled trial

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Learning objectives:

1. Understand strategies used in training wheelchair propulsion
2. Identify whether wheeling practice alone can elicit improvement in aging adults
3. Determine the impacts of wheelchair propulsion training incorporating variable practice and sporadic feedback

Session description:

Background
Aging adults are the largest and fastest growing cohort of manual wheelchair users in the Unites States and Canada; however, little is known about optimizing wheeled mobility for this population. This study's purpose was to establish whether training incorporating variable practice and sporadic feedback is superior over blocked (i.e., non-variable) practice or no-practice (i.e. inactive control) among aging adults.

Methods
Thirty-four aging able-bodied adults (>50y) with no wheelchair experience participated in this randomized controlled trial. After completing baseline testing to evaluate wheeling biomechanics, participants were randomized into three groups (training (intervention), practice (active 'dose-matched' control) or control (inactive control)). The intervention consisted of six training sessions involving variable practice and sporadic feedback. Each training session consisted of two 5-minute wheeling blocks on a treadmill separated by 10 minutes of discussion and videos to reinforce training received during wheeling. The practice group received the same duration of wheeling.

Biomechanical data were collected with an instrumented wheel at baseline, post training, and 2-weeks following training with the control group being tested at the same time periods. Data from the final minute of the 5-minute testing trial were averaged and analyzed with mixed effects regression methods.

Results
Training (n=10), practice (n=10), and control (n=14) groups did not differ in age (62.2±9.2y (mean±SD) or other demographic variables. Baseline biomechanical data were similar across groups except for peak negative force. Following training, the intervention group improved push angle (+38.3°, $p<0.001$) and push frequency (-0.64 Hz, $p<0.01$) compared to the control group (-3.0° and 0 Hz, respectively). Furthermore, improvements were retained for 2-weeks following training ($p<0.01$). There were no differences between control and practice groups ($p>0.50$).

Conclusion
Wheelchair propulsion training can be effective for increasing push length and reducing push frequency in aging adults. Practice alone did not appear to impact wheeling biomechanics.

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B3: Power or Push on? A review of wheelchair provision for MND clients within the ADHB wheelchair service

Claire Grey, OT

Learning objectives:

1. To explore optimum wheelchair prescription for MND clients
2. To define best practice pathways using current evidence of outcomes
3. To streamline funding approval timelines

Session description:

Using data from Mobility Solutions, Auckland wheelchair service collated between 2007-2010 and 2014-2017 to compare how wheelchair prescription has changed and identify any trends in equipment and timeframes. If any changes are evident to explore why and the implications relating to service delivery and evidence based practice. Studies in the UK (Rolfe, 2012) on 62 patients concluded a timeline could be used by wheelchair services to map resources required for the MND population. Ward et al (2010) found in a USA based study of 32 patient found that 66% felt the chair prescribed was timed correctly, 19% wished they started sooner. All clients exhibited high user satisfaction scores. Looking at these studies I will be relating these to the New Zealand population and practices, using both quantitate and qualitative data including case studies.

Some assumptions and hypothesis that will be robustly evaluated include:

- That rapid service provision is essential for safety and wellbeing of clients with MND.
  - Based on the progression of MND are we in time or out of time with our wheelchair prescription?
- Are clients' needs best met if their changing needs are anticipated and "future proofed"
  - We can use the data to explore the requested versus the provided equipment, asking ourselves do we under or over prescribe?
- That there are themes and consistency between clients experiences in postural needs and comfort.
  - As in the UK can we complete a pathway for our service? If so, how do we best do this? Or does this limit us seeing the client group as individuals

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