Embracing Complexity in the Development of a Community-based Exercise Transition Program for Community-dwelling Individuals with Chronic Stroke: Results of a Scoping Review.

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Background

On discharge from formal rehabilitation, stroke survivors are encouraged to continue with exercise and activity. Despite this, many are not sufficiently active and describe the transition from structured rehabilitation to community recreation as sudden and challenging.

Inactivity in this population can lead to fear avoidance behaviours, social isolation, increased risk of falls and a decreased health related quality of life (QoL).

Water-based exercise is an emerging approach that has potential to support individuals in this transition; it is accessible in most communities and allows graded practice of standing, walking, and higher-level balance in a safe yet challenging environment.

The results of this ongoing scoping review will assist with an early design of an exercise program to address complex barriers impacting ongoing physical activity for individuals with chronic stroke.

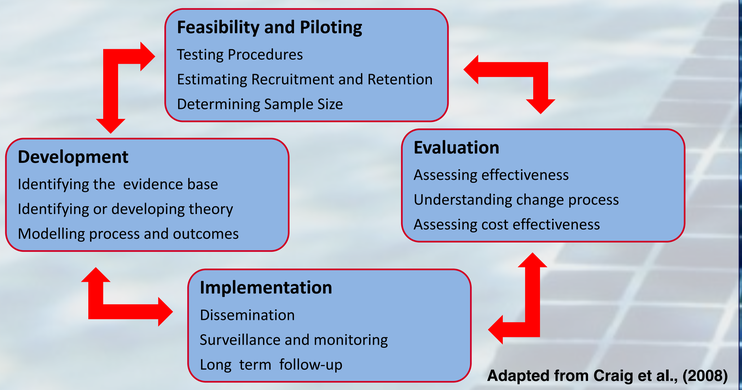
Poster Objectives

1. Describe how the Medical Research Council (MRC) Complex Health Interventions (CHI) and Consolidated Framework for Implementation Research (CFIR) are complimentary in developing this intervention.
2. Discuss preliminary results of the scoping review, and how they contribute to intervention development.

Methodology

Methods: Scoping review methodology (Levac et al., 2010), which features stakeholder consultation. The Medical Research Council Framework for CHI and the Consolidated Framework for Implementation Research (CFIR) offer methodological guidance for this work.

Figure 1: Key Elements to Development and Evaluation of a Complex Health Intervention.



Adapted from Craig et al., (2008)

Inclusion/Exclusion Criteria: (1) adult stroke survivors (≥18 years) of any type (ischemic/hemorrhagic) or stage (acute/chronic), (2) study intervention involves water-based exercise or therapy targeting a stroke-related impairment or functional limitation, (3) controlled an uncontrolled studies.

For this review, water-based, or aquatic exercise/ therapy is defined as a program, using mechanical and thermal characteristics of water during partial or complete immersion as a one-to-one or group treatment. This includes therapeutic movement, exercise or activity in a pool, bath, spa, or aquatic treadmill.

Databases Searched: CINAHL, EMBASE, PsycINFO, MEDLINE.

Preliminary Results

Figure 2: PRISMA Flow Diagram

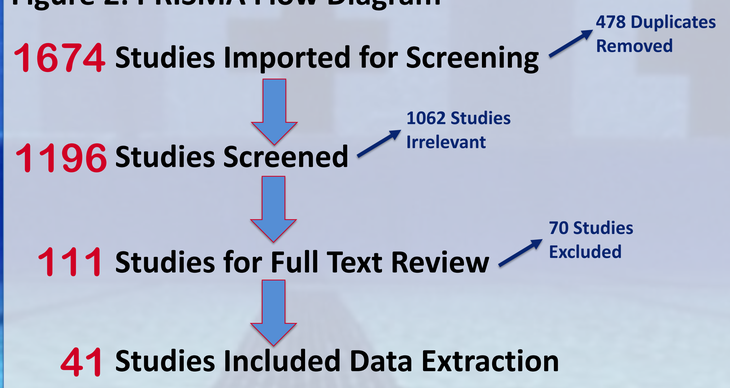
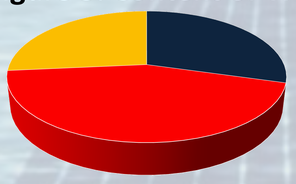


Figure 3: Content of Water-Based Programs



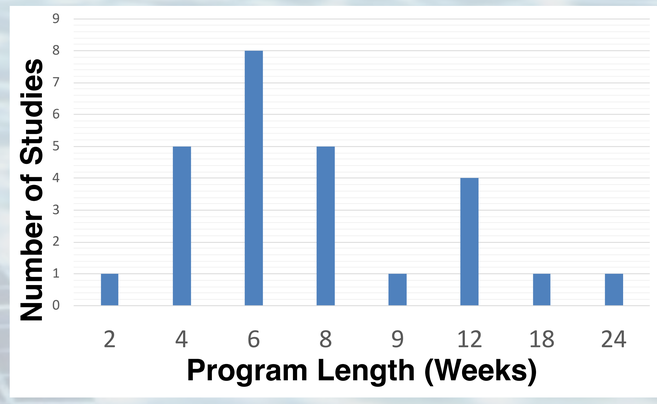
Water-Based Activities:

- Walking at Various Depths
- Deep Water Biking/Running
- Strengthening
- Stair Training
- Obstacle Course
- Active and Passive Range
- Balance Exercises
- Neuromuscular Facilitation
- Halliwick Therapy
- Ai-Chi
- Dual-Task
- Perturbations
- Bad Ragaz Ring
- Aquatic Treadmill

Table 1: Water Based Trials Post-Stroke.

Variable	Occurrence (%)
Time Since Stroke	Acute (< 3 mo): 0.02 % Sub-acute (3-6 mo): 22 % Chronic (>6 mo): 54 % Not Reported: 24 %
Ambulation Status	Ambulatory: 60 % Non-Ambulatory: 0.09 % Not reported: 30 %
Personnel Delivering Program	Physiotherapist: 56 % Aquatic Therapist: 0.024 % Exercise Physiologist: 0.024 % Not Reported: 43.95 %

Figure 4: Structure of Water-Based Programs



Discussion

Water-based interventions have gained ascendancy in recent years as they are an attractive approach for ongoing exercise. While many studies in this review included individuals with chronic stroke, the majority of interventions targeted participants who were already ambulatory. With a wide variety in both program type and duration, it is challenging to determine the most appropriate protocol based on available evidence. Continued analysis of extracted data will identify studies which demonstrated an effect on mobility related function and quality of life.

Using the data from this scoping review, an initial design of the water-based program will be created that can be modelled in focus group interviews with key patient, caregiver, community recreation and health care professional stakeholders for feedback. This will allow for the program to be developed in a pragmatic way embracing the complex barriers and facilitators to ongoing physical activity. Pilot testing will identify the evidence supporting the continuation to a randomized controlled trial and decrease implementation failure often seen in rehabilitation interventions.

References: Levac et al., 2010 ; Craig et al., 2008 ; Damschroder et al., 2009.

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