Exercise for Management of Pain and Fatigue in Adults with Cerebral Palsy

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Secondary Conditions in Adults with Cerebral Palsy

- Consistent reports of chronic pain across studies
- Loss of function associated with pain
- Significantly higher levels of fatigue
  - Mental, physical and overall fatigue
- Pain as a predictor of fatigue
Exercise as an Antidote to Pain and Fatigue

- Strong evidence in other health conditions
  - Osteoarthritis
  - Fibromyalgia
  - Cancer

It was decided to undertake an exploratory study using exercise to address pain and fatigue in adults with cerebral palsy.

Hypotheses

- Pain and fatigue in adults with CP would be reduced immediately following participation in a 3-month exercise intervention
- Pain and fatigue would return to baseline levels at 3 months post intervention
Methods

• Within subjects design
  – 3 phases 3 months each – baseline, intervention, follow-up
• Primary outcomes – pain and fatigue
  – secondary outcomes, QOL, physical activity, pain interference
• Pain and fatigue data collected monthly
• Secondary outcomes at the end of each phase
• Inclusion criteria – have chronic pain lasting 3 months or more, be able to complete surveys

Instrumentation

• Wong-Baker FACES Pain Rating scale/body parts diagram
• PedsQL™ Multidimensional Fatigue Scale – Standard Teen Report
  – SF12, Pain Disability Index, Physical Activity Scale for Individuals with Physical Disabilities

Sample

• 26 participants
• 10 males, 18 Caucasian
• Mean age 42.3 yrs (SD 11.2 yrs)
• 12 ambulatory adults, 14 nonambulatory
• 20 completed all 3 phases of the study
  – Half of the 20 were ambulatory, half were not
Intervention

• 3 weekly hour long sessions over 12 weeks
• Led by a fitness instructor from Lakeshore Foundation
  — 2 assistants to help participants
• Combination of flexibility, resistive and endurance components
• 81-100% class attendance for all but 2 participants

Pain Results

• Significant decrease in pain in proximal and distal upper extremities, and distal lower extremities for the ambulatory adults
• Returned to baseline in the follow-up phase
Pain Results

• Significant increase in pain in proximal lower extremities for the nonambulatory adults
• Decreased slightly in the follow-up phase, higher than baseline
• Significant covariate for race with African-American participants reporting higher pain scores and more body parts with pain

Fatigue Results

• General Fatigue – Ambulatory adults had significant improvement after the intervention and after follow up
• Nonambulatory adults had a nonsignificant improvement in general fatigue after the intervention and follow-up phases

Fatigue Results

• Sleep Rest Fatigue – Ambulatory adults had significant improvement after the intervention and after follow up
• Nonambulatory adults had a nonsignificant improvement in general fatigue after the intervention which dropped below baseline after follow-up
Fatigue Results

- **Cognitive Fatigue** – All adults had significant improvement after the intervention and after follow up

After the Study

- The UCP (now United Abilities) adult day program has made a significant commitment to physical activity for participants
- Regular outings to community settings and an exercise program at Lincpoint
- Other adults for the most part did not continue due to funding and transportation problems.

We concluded that exercise needs further investigation as an antidote for pain and fatigue but study results were promising.
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