Exercise-based Physiotherapy in residential aged care: feasibility, outcomes and satisfaction

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Background

- Ageing population
- Increased population living in Residential Aged Care Facilities
- Increased Care costs
- Role for Physiotherapy
  - Declines attenuated
  - Improved strength and balance
  - Lessen carer burden

Figure adapted from: https://stock.adobe.com/ee/images/medical-pills-and-money-health-care-cost-cost-of-medicine/65222473

Limited funding
Exercise based physiotherapy interventions improve:

• Strength
• Balance
• Physical function and mobility

Physiotherapy has the potential to:

• Attenuate functional decline
• Reduce care burden
• Slow increasing health care costs

Background: Exercise for aged care residents

Concentric Rehabilitation Centre

- Centres that are co-located within an aged care facility
- Low cost access to ongoing rehabilitative programs
Aims

The specific research aims were to document:

1. Acceptability of an on-site RACF exercise-based physiotherapy program
2. Physical ability and quality of life before and after participating in an on-site exercise-based physiotherapy program
Residents of Opal Cardinal Freeman Aged Care Facility

Opted to participate in Opal Rehabilitation Package (Physiotherapist-led exercise program)

Able to safely participate in exercise
Initial assessment by physiotherapist - participants divided into one of three program types:
1. Orthopaedic
2. Functionality
3. Falls and Balance

Combination of weekly group and individual sessions with a physiotherapist depending on resident function

Methods - Study Protocol

Ongoing enrolment (January 2018)
Initial Assessment & Outcome Measures
Ongoing physiotherapy exercise sessions
Outcome measures re-assessed at 6 months
Final Data Collection (March 2019)
Methods - Programs

Orthopaedic
* 3 sessions per fortnight
* Combination of groups and 1-1 training

Functionality
* Weekly 1-1 sessions

Falls and Balance
* 2 weekly group classes
Methods - Physical outcome measures

Walking Speed

- 5 Meter Walk Test
- Time recorded in seconds
- Number of steps counted
- Walking Speed recorded in metres per second (m/s)

Functional Mobility

- Timed Up and Go (TUG)
- Time recorded in seconds
- Number of steps counted

Balance

- Ability to stand & Ability to stand unsupported

Methods – Satisfaction and quality of life measures

• Purpose built satisfaction survey
• Exercise Self-Efficacy Scale
• London Handicap Scale
• Community Integration Measure
Results

PARTICIPANTS

39 participants

Average Age: 83 years (range 45 – 103)

Gender: 68% female

Moderate to Severe Cognitive Impairment: 63%

Assistance of 1 or more for mobilisation: 61%
Results

• Average number of exercise sessions per week = 1.5 (SD 0.6)

• 94% compliance with session attendance (SD 42%)

• No withdrawals from the program

• High satisfaction on survey results
### Key themes from participant feedback:

<table>
<thead>
<tr>
<th>Social Atmosphere</th>
<th>Improved Mobility</th>
<th>Staff expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Social aspects, excellent physios (great staff)”</td>
<td>“It has greatly helped with my severe pain. It has also greatly improved my mobility both in and out of the residence”</td>
<td>“The caring and respectful approach of staff. The leader treats the whole person, the cheerful atmosphere and gentle supervision”</td>
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<tr>
<td>“Worth it to come, you can meet people there”</td>
<td>“I would advise other residents to participate in rehab. It can have many great benefits. I with physio, was able to walk again after months of being immobile and having lost my confidence”</td>
<td>“Variety of exercises, awareness of my limitations, pleasant staff”</td>
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</table>
• Majority of participants improved their walking speed (55%)

• Mean change in walking speed was an improvement of 0.04 metres per second (SD 0.22)

• No overall difference in walking speed from initial to final assessment (MD -0.2, 95% CI -0.1 to 0.07, p = 0.7)
Results

• No difference in participants ability to stand up from a chair or stand unsupported for 10 seconds between initial and final assessments

• No difference in timed up and go (TUG) test times from initial to final assessment (MD 4.5, 95% CI -3.1 to 12, p = 0.2)
Results – Quality of life measures

- No change from baseline scores
- Presence of chronic pain associated with a higher final LHS score (p=0.03)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Initial Score Mean (SD)</th>
<th>Final Score Mean (SD)</th>
<th>Mean difference</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Integration Measure (/50)</td>
<td>38 (6)</td>
<td>39 (7)</td>
<td>+1</td>
<td>p=0.46</td>
</tr>
<tr>
<td>Exercise Self Efficacy Scale (/40)</td>
<td>25 (7)</td>
<td>25 (8)</td>
<td>0</td>
<td>p=0.95</td>
</tr>
<tr>
<td>London Handicap Scale (/1)</td>
<td>0.6 (0.1)</td>
<td>0.6 (0.1)</td>
<td>0</td>
<td>p=0.71</td>
</tr>
</tbody>
</table>

Note: SD = Standard deviation
Results

- More sessions per week associated with greater change in walking speed ($R^2 = 24\%, p<0.01$)

- More sessions per week associated with a better final London Handicap Scale score ($p=0.01$)
Discussion

• The mean change in walking speed was an improvement of 0.04 m/s (SD 0.22)
• This is despite the evidenced expected decline in gait speed of 0.03 – 0.05 m/s per year\(^1,2\)
• More sessions per week associated with better walking and quality of life

Conclusion

- Physiotherapist-led exercise programs are acceptable and feasible for residents of aged care facilities.
- Exercise can maintain or improve the physical outcomes of aged care residents reversing the expected decline in physical function.