Strength Training for Older People

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Greetings from Perth
Overview

✓ Strength Training has Significant Benefits for Older People
✓ Understand the Barriers and Facilitators to Exercise (including Strength Training) – findings from new research from WA
✓ Work Closely with the Older Person – Communication, Motivation, Adult Learning Styles
✓ Provide a Supportive Environment
Insufficient Physical Activity 2011-12

Disability among Older People

53% report a disability – But only 1 in 5 (20%) severe or profound core activity limitation

57% of adults who described their health as "excellent" did sufficient physical activity compared with 27% of people with "fair" and 26% with "poor" self-assessed health
Potential Engagement

People aged 65 and over - 72% rated their health as excellent, very good or good

Recommendations

Be active on most, preferably all, days every week

- accumulate 150 to 300 minutes moderate intensity physical activity / 75 to 150 minutes vigorous intensity physical activity
- do muscle-strengthening activities on at least 2 days each week
- minimise the amount of time spent in prolonged sitting
- break up long periods of sitting as often as possible

US guidelines (CDC) - muscle strengthening activities on 2 or more days per week
Benefits of Strength Training
Resistance Training - Established Benefits

- Functional capacity and Maintenance
- Quality of Life
- Psychological well-being, Depression
- Independence
- Cardiovascular benefit – including for those with HF
- Falls Prevention
- Bone Strength

Improvements in walking speed, dynamic balance, walking endurance, muscle mass, glycaemic control, obesity, hypertension

AMCM: 2009; Peterson et al 2010, Chodzko 2009
**Background:** resistance training improves muscle strength in older people (large component is neuromuscular based)

*But .... does it improve function?*

- Evidence from 121 RCTs (6,700 participants)
- Reported adherence rate high (greater than 75%)

Lui et al, Cochrane Database Sys Rev 2009
Results

- Higher intensity training (54 trials, 2026 participants) has a larger effect on strength than low to moderate intensity training (19 trials, 103 participants; p 0.007)
- Both training approaches probably effective in improving strength
- Longer duration programmes (i.e. greater than 12 weeks vs less than 12 weeks) also compared with shorter duration programmes – minimal differences
- Treatment effects in older people with and without chronic disease (or functional limitation) – *less effect size*
Modest improvement in Gait Speed (24 trials, 1179 participants, MD 0.08 m/s, 95% CI 0.04 to 0.12)
Moderate-large effect for Getting out of a Chair (11 trials, 384 participants)
TUG significantly better than controls
Large positive effect on Muscle Strength (73 trials, 3059 participants)
Participants with OA: Reduction in Pain following PRT
Older people Who Strength Train

- Become stronger
- Improve their performance of simple activities such as walking, climbing steps, or standing up from a chair more quickly
- Improve in activities such as getting out of a chair or stair climbing, Improve physical abilities, including more complex daily activities - bathing or preparing a meal
- Reduced pain in people with osteoarthritis
What are Older People Saying about Strength Training?
Hill K (Curtin), Lewin G (Silver Chain), Pettigrew S, Hill AM, Burton E (Curtin), Marston K, Airey P(COTA), Bainbridge E (Curtin). Improving community participation in strengthening programs for older people. 2015-2017 FUNDING from HEALTHWAYS
Systematic Review

- **Aim**: review the available evidence to identify factors that constitute motivators and barriers to community-dwelling older people participating in resistance (strength) training programs
- **Method**: systematic review
- **Included studies**: 60 years and over, living in community, resistance training
- **Outcomes of interest**: motivators and barriers to participation in resistance training
- **Methodological approaches** – broad range of study designs included
Findings

- n = 1,937 Participants, Study sample sizes ranged from 8 to 414
- Mean age = 69.9 years (range 50 to 94 years)
- Six studies included only Women
Barriers and Motivators
Motivators – Individual Level

Physical Benefits
- Health
- Physical Functioning
- Good health / Health scare
- Reduce pain/injury/illness including chronic conditions
- Appearance

Psychological Benefits
- Mental Function - improved alertness, concentration, stimulate mind, relieve Stress/relaxing
- Mental Health - mood, Positive outlook, Wellness
- Exercise Self-Efficacy
Barriers - Individual

Physical
- Poor health, risk of injury/pain, pain, tired/fatigue

Psychological
- Lack of willpower, lack of positive attitude, low self-efficacy
- Lack of enjoyment, too old, fear of looking too muscular
- Risk of heart attack/stroke/death
- Emotional problems that interfere with daily living e.g. nervous/depressed

Other
- Lack of time or knowledge, inconvenient, cost, exercise low priority
Motivators: Social & Environmental

Social support and Encouragement - peers and staff, spouse, family, friends, health professional (doctor)
- Increase Social Activity
- Observing others being active - family/friends participate in PRT

Environment - Organized Exercise Opportunity
- Access to facility / equipment, convenience, travel
- Program characteristics - exercising difficulty, own pace, gym atmosphere
- Staff characteristics – access, knowledge, interaction, competence
Identifying motivators and barriers to older community-dwelling people participating in resistance training: A cross-sectional study

Elissa Burton, Gill Lewin, Simone Pettigrew, Anne-Marie Hill, Liz Bainbridge, Kaela Farrier, Trish Langdon, Phil Airey & Keith D Hill

WA Survey

- **Aim**: Identify motivating factors and barriers influencing a broad group of older community dwelling adults to either commence or continue participation in a RT program.

- **Methods**: cross sectional survey

- **Participants**: LLLS, COTAWA, Home Care Agency

- n = 1327 questionnaires were returned (response rate = 42.5%).
Results

Barriers
- Ongoing injury or illness
- Pain
- Not interested
- Feeling too old

Facilitators
- To feel good physically, to feel fit
- To feel good mentally

Home Care
- Be independent, Reduce falls

Seniors group
- Feel good physically and mentally
Barriers - Social and Environmental

Social
- Family and/or work obligations/responsibilities
- Lack of social support

Environment
- Lack of exercise facilities, moved away from facility
- Geographical location
- Lack of age appropriate programs
Factors Associated With Older Patients' Engagement in Exercise After Hospital Discharge


Anne-Marie Hill, MSc; Tammy Hoffmann, PhD; Steven McPhail, PhD; Christopher Roer, MB, BS; Keith D. Hill, PhD; Sandra G. Brauer, PhD; Terrence P. Haines, PhD

DOI: http://dx.doi.org/10.1016/j.apmr.2011.04.006

Abstract

Prospective Observational Study

N=343 Quantitative and qualitative analysis

❖ Setting and Participants
Swan Districts hospital, Perth Western Australia
≥ 60 years discharged after rehabilitation

❖ Final telephone survey 6 months after Discharge

Hill AM et al; APMR 2011
Survey 6 months after discharge

<table>
<thead>
<tr>
<th>Engagement in exercise</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal programme at least x1 week</td>
<td>109 (35.7)</td>
</tr>
<tr>
<td>- group</td>
<td>43 (39.4)</td>
</tr>
<tr>
<td>- unsupervised at home</td>
<td>34 (31.2)</td>
</tr>
<tr>
<td>Not at discharge but now commenced</td>
<td>19 (6.2)</td>
</tr>
<tr>
<td>Ceased programme</td>
<td>54 (17.7)</td>
</tr>
<tr>
<td>No engagement</td>
<td>115 (37.8)</td>
</tr>
<tr>
<td>Recall of recommendation to exercise by PT</td>
<td>221 (72.5)</td>
</tr>
</tbody>
</table>
Barriers to engagement

Self Efficacy
- No need
- Don’t fall over
- Dislike exercise
- Lost interest
- Don’t feel safe
- Might fall

Medical
- Shortness of breath
- Too unwell
- Increases back pain

Service delivery
- Could not get to class
- Not given program
Predictors of Engagement

- Self-belief of serious risk of injury from a fall
  OR 0.72, (95% CI 0.60, 0.87), p<0.001

- Recommended by physiotherapist
  OR 2.90, (95% CI 1.71, 4.92), p<0.001

- Lived with partner
  OR 1.76, (95% CI 1.11, 2.79), p=0.02

- Lived home alone
  OR 0.56, (95% CI 0.33, 0.39), p=0.02

- No recall of recommendation
  OR 0.43, (95% CI 0.21, 0.86), p=0.02
Practical Strategies
Exercise

Motivators
- Feel younger, alert stimulates mind
- Strength, function, independence
- Social support, feeling of belonging
- Convenient, age appropriate own pace

Barriers
- No willpower, no enjoyment, risk of death
- Risk of injury, pain, tired
- No social support, family responsibilities
- Lack age appropriate or general facilities

Mediating Role of Health Professional
Self Efficacy

Person → Behaviour → Outcome

Efficacy Expectations

Outcome Expectations

Strecher, Bandura
Opportunity – Social, Environment

Motivation – Confidence, Overcome Barriers
- Problem Solving, Emotional Cues
- Cues, Reminders

Capability – Knowledge, Awareness
- Rehearsal, Training
- Goal Setting

Program and Transport
- Family support

Michie et al, 2011
Aim – Seek Older Peoples’ Views About how they would Like to Receive Falls Prevention Information
World Cafe Forum

live
LOVE
LEARN

Falls Prevention-World Cafe Forum held on 29 Oct 2014.
A conversational process with over 80 individuals aged 60 plus, sharing insights and feasible solutions towards prevention of falls.
Older Peoples’ Views

- **Personal experience** is Key to being Receptive or Seeking out Falls Prevention Information

- Pictures and Visual cues, Practical strategies

- **Credible Sources of Information** - Public Libraries, Peer Educators, Seniors’ Organisations, Local Shopping Centres
Advice for Health Professionals

- Positive Tone
- Respect, Empathy
- Time to Listen to Foster Motivation

“...Talks to me like a real human being, draws pictures for me...”

“...Caring, trust and respect before the message can be received...”
Plan of Action

- Develop a Working Group at your Setting – Include Older Adults
- Benchmark the Exercise that your Population is Undertaking
- Follow up with Effective Communication to Group/Individual Patients
- Provide Supportive Resources and Environment for Older People to Engage in Exercise – Buddies, Checklists, Videos, Emails, Local “Go To”
- Take a “Champion” Role At Your Site – Lead with the Evidence
Thank you!

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