EXERCISE FOR PEOPLE WITH DEMENTIA

- A study of feasibility and effectiveness of a balance exercise program in people with AD
- A practice session on exercise prescription for people with dementia
- A study of factors influencing commencement and adherence to the exercise program
Feasibility and Preliminary Evidence of the Effectiveness of A Home-based Exercise Programme for Older People with AD

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Lautenschlager NT
Melbourne University

Williams SB
NARI

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NARI
Falls and Dementia

- Falls consequences: injuries, hospitalisations
- 30% older people (≥ 65 years)
- 40-80% older people with dementia
- Falls– predictors of care-transition
Falls risk & Balance dysfunction

- Falls are multifactorial (intrinsic & extrinsic factors)
- Balance performance
  - a major risk of falling
  - modifiable risk factor
  - falls risk assessment/intervention
  - contributing to falls in people with dementia
FEASIBILITY AND EFFECTIVENESS
OF EXERCISE PROGRAM IN AD.

Aims:  - to evaluate the feasibility/safety of a home-based balance exercise program
       - to provide evidence of program effectiveness

Methods:  40 participants with AD
          6 month home-based programs: i) balance exercise; ii) education program
Methods: 2 Home-based programs
(6 home visits & 5 phone calls)

I. Home-based balance exercise program

- based on “Otago programme”
- based on balance and mobility assessment
- included balance and strengthening exercises
- delivered by a physiotherapist
- an exercise booklet
- exercise 5 days/week
- supported by caregiver
II. Home-based education (control) program

- partly based on study by Graff et al., 2007
- included education/information sessions
- by an occupational therapist

Methods: 2 Home-based programs
(6 home visits & 5 phone calls)
Methods: Measurements

- Balance/mobility performance
  - clinical measures
  - computerised posturography measures
    • static/dynamic; • sensory challenge; • single/dual task

- Falls

- Falls risk: FROP-com, PPA

- Physical activity level (HAP)
**The Falls Risk for Older People-Community (FROP-Com)**


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**Falls Risk Assessment Form**

*To be completed on patient admission and after an acute episode*

**Medical Staff**

**Recent falls (0-5):**

- Has the patient fallen recently?
  - No
  - Yes, in last 12 months
  - Yes, 2 or more times in last 12 months
  - Yes, more often during their current hospitalisation

- Did they sustain an injury?
  - No
  - Minor injury
  - Medically attended to
  - Severe injury

**Medications (0-3):**

- Is the patient on any medication?
  - No medication
  - 1-2 medications
  - 3 medications
  - 4 or more medications

**Medical conditions (0-5):**

- Does the patient have a chronic medical condition affecting their balance & mobility?
  - None
  - One condition
  - Two conditions

**Sensory loss & communication:**

- Does the patient have a sensory deficit that limits their functional ability?
  - Yes
  - No

- Is there a problem with communication (e.g., NIMH or Deafness)?
  - No
  - Yes

**Nursing**

**Conscience:**

- Is the patient independent?
- Do they require frequent assistance or prompting to toileting?
- Do they require nocturnal assistance?

**Environmental conditions (score 0-3 points):**

- Has the patient's fixed footwear changed in the past three months due to a loss of appetite, digestive problems, chewing or swallowing difficulties?
  - No
  - Small change, but intake remains good
  - Moderate loss of appetite
  - Severe loss of appetite/weight loss/malaise

- Weight loss during the last 6-12 months
  - None
  - Minimal (1-1 kg)
  - Moderate (1-3 kg)
  - Severe (3 kg+)

**Ocuppational Therapist**

**Functional Behaviour (score 0-3):**

- Observed behaviour in Activities of Daily Living & Mobility indicate:
  - Consistently aware of current ability/needs & appropriate assistance is provided
  - Generally aware of current ability/occasional risk taking behaviour
  - Underestimates ability/misjudges ability/failure of activity
  - Overestimates ability/frequent risk taking behaviour

**Feet & footwear and clothing:**

- Does the patient have foot problems, e.g., corns, bunions, etc.?
  - No
  - Yes (1) specify:

- Is the patient's main footwear:
  - Poor fitting
  - Too big
  - Too small
  - Incorrect support/ankle support

- Does the patient's clothing fit well (i.e., loose or tight fitting)?
  - Yes
  - No

**Physiotherapist**

**Balance (score 0-3 points):**

- Were the patient's scores on the Timed Up and Go test and the Functional Reach test within normal limits?
  - Both normal
  - One below normal
  - Both below normal

**Normal limits:**

- Timed Up and Go: less than 18 seconds
- Functional Reach: 23 cm or more

**Total Risk Score:**

Score Legend: XX = Low risk; XX = Medium risk; XX = High risk
The Physiological Profile Assessment (PPA)

(Postural Sway (Balance), Visual contrast sensitivity, Reaction Time, Lower limb proprioception, Leg muscle strength)

(Lord SR et al., 2003)
**Clinical measures:** FR, ST, TCS, TUG (single/dual task)

- **Functional Reach**
- **Step Test** (15 seconds)
- **Timed Up and Go test** (3 m)
**Methods:** Measurements

**Force platform measures:**

*static/ dynamic balance, functional mobility*

**Mobility functions**
- Walking
- Turning
- Sitting to standing
Findings/Conclusion:

- Program completion: exercise program (11 of 19)
  control program (18 of 21)

Higher drop-out rate in exercise program

- *different nature of the two programs*
- *caregivers’ limitations*
Findings/ Conclusion:

- Exercise program:
  - no falls/ adverse events
  - 83% adherence
  - reduced risk of falling (FROP-com score)
  - improve standing balance and mobility performance

Home-based balance exercise delivered by PT

- can be implemented safely
- may reduce falls risk, improve balance/mobility in dementia
WORKSHOP - EXERCISE FOR PEOPLE WITH DEMENTIA

- Exercise prescription
- Exercise modification
- Exercise monitoring
Otago Exercise Programme

to prevent falls in older adults

A home-based, individually tailored strength and balance retraining programme

Modifications:

- Increased support
- Exercise prescription
- Caregiver’s involvement

- **Increased support**

<table>
<thead>
<tr>
<th>Programme Schedule</th>
<th>Otago Programme (suggested from the previous 4 trials(^1,,^4))</th>
<th>Otago Programme for Dementia (suggested from the previous study on AD(^5))</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home visits</strong></td>
<td>• Physiotherapist / community nurse</td>
<td>• Physiotherapist</td>
</tr>
<tr>
<td></td>
<td>• 4-5 Home visits</td>
<td>• 6 Home visits</td>
</tr>
<tr>
<td></td>
<td>(at weeks 1, 2, 4, 8, and after 6 months)</td>
<td>(at weeks 1, 3, 5, 8, 14, 20)</td>
</tr>
<tr>
<td></td>
<td>• Approx. 1 hour for first home visit</td>
<td>• Approx. 1 hour for first home visit</td>
</tr>
<tr>
<td></td>
<td>- establish a good working relationship with the participant</td>
<td>- establish a good working relationship with the participant and the caregiver</td>
</tr>
<tr>
<td></td>
<td>- explain the rationale for the programme</td>
<td>- explain the rationale for the programme (to both the participant and caregiver)</td>
</tr>
<tr>
<td></td>
<td>- take a clinical history and assess the factors that will influence safety and adherence to the programme</td>
<td>- take a clinical history and assess the factors that will influence safety and adherence to the programme (consider the caregiver's capability to be involved)</td>
</tr>
<tr>
<td></td>
<td>- prescribe a set of exercises and encourage the person to become familiar with the instructions of each exercise</td>
<td>- prescribe a set of exercises and encourage the person to become familiar with the instructions of each exercise (emphasise the role of caregiver in supporting the participant: encourage, supervise)</td>
</tr>
<tr>
<td></td>
<td>- introduce walking plan (if possible)</td>
<td>- introduce walking plan (if possible)</td>
</tr>
<tr>
<td></td>
<td>- provide and explain how to use an exercise booklet with illustrations and instructions in large print for the exercises currently prescribed in their individualised programme</td>
<td>- provide and explain how to use an exercise booklet with illustrations and instructions in large print for the exercises currently prescribed in their individualised programme (to both participant and caregiver)</td>
</tr>
<tr>
<td></td>
<td>- provide and explain how to use a calendar or diary to monitor exercises and record any falls</td>
<td>- provide and explain how to use a calendar or diary to monitor exercises and record any falls (to both participant and caregiver)</td>
</tr>
<tr>
<td></td>
<td>• Approx. 30 minutes for subsequent visits</td>
<td>• Approx. 30 minutes for subsequent visits</td>
</tr>
<tr>
<td><strong>Follow-up phone calls</strong></td>
<td>• Physiotherapist / community nurse</td>
<td>• Physiotherapist</td>
</tr>
<tr>
<td></td>
<td>• 3 phone calls during 6 month period</td>
<td>• 5 phone calls during 6 month period</td>
</tr>
<tr>
<td></td>
<td>(at weeks 3, 4, 5)</td>
<td>(at weeks 2, 4, 6, 11, 17)</td>
</tr>
</tbody>
</table>
- **Increased support:** 1\textsuperscript{st} home visit

<table>
<thead>
<tr>
<th>Programme Schedule</th>
<th>Otago Programme (suggested from the previous 4 trials\textsuperscript{1-4})</th>
<th>Otago Programme for Dementia (suggested from the previous study on AD\textsuperscript{5})</th>
</tr>
</thead>
</table>
|                    | • Approx. 1 hour for first home visit  
|                    | - establish a good working relationship with the participant  
|                    | - explain the rationale for the programme  
|                    | - take a clinical history and assess the factors that will influence safety and adherence to the programme  
|                    | - prescribe a set of exercises and encourage the person to become familiar with the instructions of each exercise  
|                    | - introduce walking plan (if possible)  
|                    | - provide and explain how to use an exercise booklet with illustrations and instructions in large print for the exercises currently prescribed in their individualised programme  
|                    | - provide and explain how to use a calendar or diary to monitor exercises and record any falls  
|                    | • Approx. 30 minutes for subsequent visits  
|                    | • Approx. 1 hour for first home visit  
|                    | - establish a good working relationship with the participant and the caregiver  
|                    | - explain the rationale for the programme (to both the participant and caregiver)  
|                    | - take a clinical history and assess the factors that will influence safety and adherence to the programme (consider the caregiver’s capability to be involved)  
|                    | - prescribe a set of exercises and encourage the person to become familiar with the instructions of each exercise (emphasise the role of caregiver in supporting the participant: encourage, supervise)  
|                    | - introduce walking plan (if possible)  
|                    | - provide and explain how to use an exercise booklet with illustrations and instructions in large print for the exercises currently prescribed in their individualised programme (to both participant and caregiver)  
|                    | - provide and explain how to use a calendar or diary to monitor exercises and record any falls (to both participant and caregiver)  
|                    | • Approx. 30 minutes for subsequent visits  

# Programme schedule:

<table>
<thead>
<tr>
<th>Week Number</th>
<th>Home visits/ Phone calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Home visit by PT: 1</td>
</tr>
<tr>
<td>2</td>
<td>Phone call by PT: 1</td>
</tr>
<tr>
<td>3</td>
<td>Home visit by PT: 2</td>
</tr>
<tr>
<td>4</td>
<td>Phone call by PT: 2</td>
</tr>
<tr>
<td>5</td>
<td>Home visit by PT: 3</td>
</tr>
<tr>
<td>6</td>
<td>Phone call by PT: 3</td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Home visit by PT: 4</td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Phone call by PT: 4</td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Home visit by PT: 5</td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Phone call by PT: 5</td>
</tr>
<tr>
<td>18</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Home visit by PT: 6</td>
</tr>
<tr>
<td>21</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>
Safety

Never exercise holding on to an object which may move, for example a chair. Always use the side of something stable like a bench or solid table unless otherwise instructed.

If illness stops you from maintaining the exercise programme contact your instructor before starting again.

Contact your doctor if while exercising you experience...

- Dizziness
- Chest pain
- Shortness of breath (you are unable to speak because you are short of breath).

If you have any questions about the exercise programme please do not hesitate to telephone me:
- **Exercise prescription: Complexity, intensity, duration**

## Programme Schedule

<table>
<thead>
<tr>
<th>Exercise prescription</th>
<th>Otago Programme (suggested from the previous 4 trials)</th>
<th>Otago Programme for Dementia (suggested from the previous study on AD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Components</td>
<td>• Warm-up/Strengthening/Balance retraining (based on baseline strength/balance measurements: Chair stand test, the Four-Test Balance Scale Stands)</td>
<td>• Warm-up/Strengthening/Balance retraining (based on baseline comprehensive strength/balance assessment: Functional Reach test, Step Test, Chair Stand test, the Timed Up and Go test, computerised posturography measures)</td>
</tr>
<tr>
<td></td>
<td>• Walking (up to 30 minutes, can be broken down to 3 sessions throughout the day, at least 2 times a week)</td>
<td>• Walking (depends on present walking activities, can be broken down to sessions throughout the day)</td>
</tr>
<tr>
<td></td>
<td>• Chair stand test</td>
<td>• Chair stand test</td>
</tr>
<tr>
<td></td>
<td>• Four-Test Balance Scale Stands</td>
<td>• ST, FR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• TUG (single/dual task)</td>
</tr>
</tbody>
</table>

### Chair stand test
- **FR (Functional Reach)**
- **ST (Standing Test)**
- **TUG (Timed Up and Go)**
• Exercise prescription: Complexity, intensity, duration

<table>
<thead>
<tr>
<th>Programme Schedule</th>
<th>Otago Programme (suggested from the previous 4 trials\textsuperscript{1-4})</th>
<th>Otago Programme for Dementia (suggested from the previous study on AD\textsuperscript{5})</th>
</tr>
</thead>
</table>
| Exercise prescription | • Intensity  
• Frequency  
• Duration | • Moderate  
• 3 times/ week, with rest between day  
• Approx. 30 minutes (not including walking) (exercises can be divided up over the day) | • Moderate  
• 5 times/ week (can perform everyday)  
• Approx. 15 minutes (not including walking) (exercise can be divided up over the day) |

• 3 times/ week  
• 30 minutes  

• 5 times/ week (everyday)  
• 15 minutes
**Otago Programme**
- Walk at your regular pace
- Turn in a clockwise direction
- Walk back to your starting position
- Turn in an anti-clockwise position
- The exercise is figure of eight movement
- Repeat ..... times

**Modifid Otago Programme for dementia**
- Walk at your regular pace
- Walk and turn in a figure of eight movement
- Repeat this movement ...... times
Exercise prescription: Complexity

- Simple instructions
- Avoid overwhelming information

**Otago Programme**

- You could do this exercise while you watch TV
- Sit on chair which is not too low
- Place the feet behind the knees
- Lean forwards over your knees
- Push off with both hands to stand up
- Repeat ..... times

**Modified Otago Programme for dementia**

- Sit on a chair which is not too low
- Push off with both hands to stand up
- Repeat ... times
Exercise prescription: Complexity

- Simple instructions
- Avoid overwhelming information

Otago Programme

- You could do this exercise while you watch TV
- Sit on chair which is not too low
- Place the feet behind the knees
- Stand up without using your hands
- Repeat ..... times

Modifed Otago Programme for dementia

- You could do this exercise while you watch TV
- Sit on a chair which is not too low
- Stand up without using your hands
- Repeat ..... times
Exercise prescription: complexity

**Toe raises-no support**
- Stand up tall and look ahead
- The feet are shoulder-width apart
- Come up onto the heels, raising the front foot of the floor
- Lower the heels to the ground
- Repeat this exercise 20 times

**Calf raises-no support**
- Stand up tall and look ahead
- The feet are shoulder-width apart
- Come up onto your toes
- Lower the heels to the ground
- Repeat this exercise 20 times

Otago Programme: Strengthening exercise
• **Exercise prescription: complexity**

**Modifed Otago Programme for dementia: Balance retraining**

- Stand with feet apart
- Try to move your weight as far forwards as possible, then as far backwards as possible
- Repeat 10 times
Balance and mobility performance assessed at baseline:

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>MMSE: Completed <strong>YES</strong> □ <strong>NO</strong> □</td>
<td>Score ........22.............../ 30</td>
</tr>
<tr>
<td>3.</td>
<td>Falls Risk for Older People (FROP)</td>
<td>No. of falls ........2..........</td>
</tr>
<tr>
<td></td>
<td>Completed <strong>YES</strong> □ <strong>NO</strong> □</td>
<td>Level of injury: ..........mild........</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No. of Med ......5.......</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total score: ......15....../ 60</td>
</tr>
<tr>
<td>4.</td>
<td>Functional reach (FR)</td>
<td>Distance......21........... cm</td>
</tr>
<tr>
<td></td>
<td>Completed <strong>YES</strong> □ <strong>NO</strong> □</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Step Test (ST)</td>
<td>Worse side ......10...... times</td>
</tr>
<tr>
<td></td>
<td>Completed <strong>YES</strong> □ <strong>NO</strong> □</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Time Chair Stand (TCS)</td>
<td>Time:........12........... (secs)</td>
</tr>
<tr>
<td></td>
<td>Completed <strong>YES</strong> □ <strong>NO</strong> □</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Timed Up and Go</td>
<td>Single task:........16......... secs</td>
</tr>
<tr>
<td></td>
<td>Completed <strong>YES</strong> □ <strong>NO</strong> □</td>
<td>Dual task (manual):........24......... secs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dual task (cognitive):........27...... secs</td>
</tr>
<tr>
<td>8.</td>
<td>Modified CTSIB: Completed <strong>YES</strong> □ <strong>NO</strong> □</td>
<td>Eyes open (EO) ........0.1...............</td>
</tr>
<tr>
<td></td>
<td>Sway velocity</td>
<td>Eyes closed (EC) ........0.5...............</td>
</tr>
<tr>
<td>9.</td>
<td>No. Chronic diseases</td>
<td>Foam-eyes open (FO) ........1.30...............</td>
</tr>
<tr>
<td>10.</td>
<td>Living arrangement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. living at home with spouse as a caregiver</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. living at home with son/daughter as a caregiver</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. living at home with a trained caregiver</td>
<td></td>
</tr>
</tbody>
</table>
Otago exercise programme to prevent falls
activity booklet

- Monitor your progress using a calendar or diary
- When you have completed your exercises write an “E” for that day on your calendar
- When you have gone for a walk write a “W” for that day on your calendar

This exercise programme was designed by Melissa Hardie, research physiotherapist
New Zealand Falls Prevention Research Group February 2001
### Exercise prescription: progressions

<table>
<thead>
<tr>
<th>Programme Schedule</th>
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<th>Otago Programme for Dementia (suggested from the previous study on AD(^5))</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Progressions</td>
<td>• Strengthening exercises:</td>
<td>• Strengthening exercises:</td>
</tr>
<tr>
<td></td>
<td>- Increasing weights (ankle cuff weights)</td>
<td>- Increasing weights (ankle cuff weights)</td>
</tr>
<tr>
<td></td>
<td>- Increasing number of sets, repetitions</td>
<td>- Increasing number of sets, repetitions</td>
</tr>
<tr>
<td></td>
<td>• Balance retraining exercises:</td>
<td>• Balance retraining exercises:</td>
</tr>
<tr>
<td></td>
<td>- Decreasing base of support (from supporting exercise to unsupported exercise)</td>
<td>- Decreasing base of support (from supporting exercise to unsupported exercise, or from standing with feet apart position to standing with feet together or in tandem positions)</td>
</tr>
<tr>
<td></td>
<td>- Increasing time or repetitions for the task</td>
<td>- Altering sensory input (e.g. standing on less stable surface, or standing while turning head)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- increasing the number of simultaneous tasks being performed (e.g. turning head while performing standing or walking tasks)</td>
</tr>
</tbody>
</table>

- Exercises targeting balance under dual task conditions
- Exercises targeting balance under conditions with altering sensory inputs
Modified Otago Programme for dementia:

Progressions for balance retraining exercises:

- Decreasing base of support (from supporting exercise to unsupported exercise, or from standing with feet apart position to standing with feet together or in tandem positions)
- Altering sensory input (e.g. standing on less stable surface, or standing while turning head)
- Increasing the number of simultaneous tasks being performed (e.g. turning head while performing standing or walking tasks)
• Exercise monitoring

• 6 home visits
• 5 follow-up phone calls
• Exercise recording sheet

### Home Exercise recording sheet for: 

**Please tick each day that each exercise is completed**

<table>
<thead>
<tr>
<th>MONTH: ....................... ( ....... week)</th>
<th>Commencing date ..........</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXERCISE</td>
<td>1</td>
</tr>
<tr>
<td>1. Trunk stretching&lt;br&gt;Calf stretching</td>
<td></td>
</tr>
<tr>
<td>2. Quadriceps strength&lt;br&gt;Toe raises&lt;br&gt;Heel raises</td>
<td></td>
</tr>
<tr>
<td>3. Tandem stance&lt;br&gt;Standing with EC&lt;br&gt;Reaching&lt;br&gt;Stand, walk, turn</td>
<td></td>
</tr>
<tr>
<td>4. Walking</td>
<td></td>
</tr>
</tbody>
</table>

If you have any concerns regarding any of the exercise, please cease the exercise and contact the Physiotherapist (.............................., phone ......................)

If you have been unable to do the exercises 5 times each week, please list reasons:

..................................................................................................................................................................................................................................................................................................................
Aims: to explore factors that influence commencement and adherence to the exercise program

Methods: - a phenomenological theoretical framework,
- semi-structured interview (undertaken after the exercise completion)
- 10 participants with AD/9 caregivers
## Findings:

<table>
<thead>
<tr>
<th>Decision to commence the program</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participants with AD (n = 10)</strong></td>
<td><strong>Caregivers (n = 9)</strong></td>
</tr>
<tr>
<td>1. Possible benefits</td>
<td>1. Possible benefits</td>
</tr>
<tr>
<td>2. Positive attitude/prior exercise experience</td>
<td>2. Positive attitude/prior exercise experience</td>
</tr>
<tr>
<td>3. Assist with research</td>
<td>3. Assist with research</td>
</tr>
<tr>
<td>4. Advice from health professionals</td>
<td>4. Advice from health professionals</td>
</tr>
<tr>
<td>5. Minimise caregiver’s burden</td>
<td></td>
</tr>
</tbody>
</table>
C. 6, Female:

“If we can get the confidence back and the walking back, the quality of life would be maintained. So that was the reason why we got stuck into it.”

<table>
<thead>
<tr>
<th>Decision to commence the program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants with AD (n = 10)</td>
</tr>
<tr>
<td>Caregivers (n = 9)</td>
</tr>
<tr>
<td>1. Possible benefits</td>
</tr>
</tbody>
</table>
## Findings:

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<tr>
<td><strong>Participants with AD (n = 10)</strong></td>
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</tr>
<tr>
<td>2. Positive attitude/prior exercise experience</td>
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</tr>
</tbody>
</table>

P. 4, Female:

“I was always a great walker... I was a runner...I took first prize all the time...I used to go to the gym...swimming.”
## Findings:

### Decision to commence the program

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<th>Participants with AD (n = 10)</th>
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<tr>
<td>3. Assist with research</td>
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</tbody>
</table>

P. 9, Female:

“A lot of it was because I like to do things to help other people…we both do a lot volunteering.”

C. 6, Female:

“If we can help, if mum can help with all this, it is going to help me when I get to that stage…future baby boomers.”
### Findings:

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<td>5. Minimise caregiver’s burden</td>
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P. 5, Female:

“**Well, to get out and not be a burden on xxx (daughter).**”
Findings:

<table>
<thead>
<tr>
<th>Adherence to the program (Facilitators)</th>
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<tr>
<td>1. Program characteristics (n = 6 P, 9 C)</td>
</tr>
<tr>
<td>- 6-month duration (i.e. suitable for both participant /caregiver)</td>
</tr>
<tr>
<td>- 15-20 minute exercise session</td>
</tr>
<tr>
<td>- Exercise program complexity/preference</td>
</tr>
<tr>
<td>2. Physiotherapists (n = 10 P, 9 C)</td>
</tr>
<tr>
<td>- Professionalism</td>
</tr>
<tr>
<td>- Supportive characteristics</td>
</tr>
<tr>
<td>3. Exercise recording sheet (n = 3 P, 3 C)</td>
</tr>
<tr>
<td>4. Caregivers' support (n = 2 P, 6 C)</td>
</tr>
<tr>
<td>5. Participants' sense of commitment (n = 2 P, 5C)</td>
</tr>
<tr>
<td>6. Perceived benefits (n = 3 P, 2 C)</td>
</tr>
</tbody>
</table>
### Adherence to the program (Facilitators)

1. **Program characteristics (n = 6 P, 9 C)**
   - 6-month duration
   - 6-home visits and 5 follow-up phone call
   - 15-20 minute exercise session
   - Provision of an exercise booklet
   - Exercise program complexity/preference

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**Findings:**

**C. 5, Female:**

“I think they (PT visits) were pretty well spread-out.”

**C. 6, Female:**

“The exercises were very clear and xxs (PT) wrote instructions if she varied them and mum would have that on the table and she would flip over and ‘how to do this?’ It was easy for her to follow.”
Findings:

Adherence to the program (Facilitators)

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C. 7, Female:

“I would sit here and tell him (participant) what to do next…I should have had a director’s chair that I could sit in…I just used to sit there and say ‘well now we’ll do this one’ and so forth.”
### Findings:

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### C. 5, Female:

“*Home-visit does spur you on, you know, you think ‘well, she (PT) is coming next week, we better get busy’ (laughing)…you need that little just sometimes to keep you wound up.*”
Findings:

**Adherence to the program (Facilitators)**

2. Physiotherapists (n = 10 P, 9 C)
   - Professionalism
   - Supportive characteristics

C. 6, Female:
“*She (PT) was not intrusive... she was not going to be here... for two hours and then you would be saying to yourself ‘God, I wish she would go away!’*, but she did the right thing, she just came, did it and went. *Very professional she was.*”

C. 6, Female:
“*She (PT) was good with the exercises; she explained why, what, how, and everything.*”
Findings:

Adherence to the program (Facilitators)

3. Exercise recording sheet (n = 3 P, 3 C)

P. 9, Female:
“Cause you have got to fill that form in and if it was blank all the time, it would be a bit of a problem, wouldn’t it? (laughing).”

C. 6, Female:
“That (exercise recording sheet) is necessary because after that month is over, she can look back and go ‘oh gee I did a good job’ and xxx (PT) would go ‘you have not missed a week, you have not missed a day’…it is like giving the kids a gold star.”
Findings:

Adherence to the program (Facilitators)

4. Caregivers’ support (n = 2 P, 6 C)
5. Participants’ sense of commitment (n = 2 P, 5 C)

P. 4, Female:
“He (caregiver) will often sit and watch and say ‘oh you could do a little bit better than that, try it’. Yeah, well it makes you do it”

P. 5, Female:
“Well what I start, I want to finish”
Adherence to the program (Facilitators)

6. Perceived benefits (n = 3 F, 2 C)

<table>
<thead>
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<th>P. 4, Female:</th>
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<tr>
<td>“I realised that it was good for me…and I just kept doing it.”</td>
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<table>
<thead>
<tr>
<th>C. 2, Male:</th>
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<tbody>
<tr>
<td>“Well, it is doing her (participant) good. She thought she was, with the exercises she was improving, so we kept on with it.”</td>
</tr>
</tbody>
</table>
Findings:

<table>
<thead>
<tr>
<th>Adherence to the program (Barriers)</th>
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<tbody>
<tr>
<td>1. Pre-existing/acute health conditions (n = 2 P, 4 C)</td>
</tr>
<tr>
<td>2. Dislike of structured exercise (n = 1 P, 1 C)</td>
</tr>
<tr>
<td>3. Being away from home (n = 1 P)</td>
</tr>
<tr>
<td>4. Caregivers’ factors (n = 1 P, 1 C)</td>
</tr>
<tr>
<td>- health condition</td>
</tr>
<tr>
<td>- other commitments</td>
</tr>
<tr>
<td>5. Inclement weather (n = 2 P)</td>
</tr>
</tbody>
</table>
Conclusion:

- **Pre-intervention strategies:**
  - provision of knowledge of potential benefits of exercises
  - evaluation of both participants and caregivers capability/preferences

- **Individualising the program:**
  - intensity/complexity for participants
  - availability/constraints for caregiver

- **Strategies to support participants through the program**
  - ongoing support (from caregiver/PT)
  - provision of self-monitoring/evaluation
  - planning for any modifications/flexibility
THANK YOU

QUESTIONS?
Publications:


