

# “Navigating the Road Ahead”

*A Conference on Caregiving*



**Canadian Centre for  
Activity and Aging**

*from research to action* ●●●

## Alzheimer's Disease and Physical Activity What are we Forgetting?

Presented by: Clara Fitzgerald Director - CCAA



# Presentation Overview

- Overview of CCAA
- How to design effective and outcome based PA programs – measure outcomes
- Incorporating meaningful and effective exercises to maximize ADL's
- Ensure programs are engaging
- Questions

How old would you say you are if you didn't actually know your birthday?

Why?

What component of fitness would you say has declined the most with advanced age?

Reality is we are all aging

After the Age of 25 – regardless of gender or ethnic makeup!

Physiological Functional Decline

1% loss in S,B,F, CR and metabolism per \_\_\_\_\_

After the age of \_\_\_\_\_

\_\_\_\_\_ -35 – 10%

36-45 - 10%

46-55 – 10%

56-65 – 10%

66-75 – 10%

76-85 – 10% ....

This is reversible and manageable

Need to work for the benefits – no pill to provide fitness benefits....

## **Mission**

To develop, encourage and promote an active, healthy lifestyle for Canadian adults that will enhance the dignity of the aging process.



## Is Alzheimer's disease preventable ??

*>> No cure however there is growing evidence that lifestyle choices that keep the mind and body fit can reduce the risk and delay the onset*

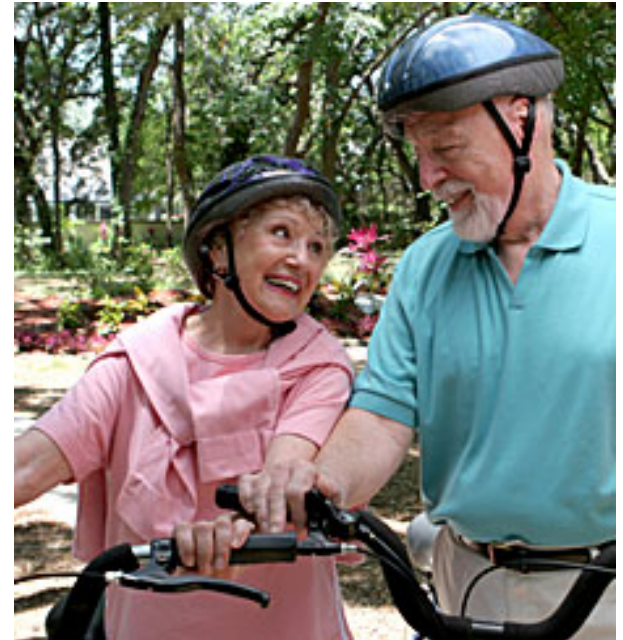
- Being physically active*
- Eating healthy foods including fresh fruits and vegetables*
- 30% vs 70%*
- Delay the onset of the disease /progression*

## Case Study

- Sample population of older adults who were 65 years and older
- CASI (Cognitive Screening Ability Instrument) was used
- Those who scored >86% were automatically included
- Those who scored less underwent more testing

# Case Study

- The total analytical sample was 1740 individuals
- Questionnaires were administered to determine the extent of their physical activity
- Follow up occurred after a mean of 6.2 years



# Case Study

- Results found that of the 1740 individuals
  - 1185 remained dementia free
  - 276 had died
  - 158 developed dementia (107 with Alzheimer's)
  - 121 withdrew from the study
- Incident rate of dementia
  - 13.0/1000 → regular exercisers
  - 19.7/1000 → non-regular exercisers

# Living well with Dementia

- Number of people with Alzheimer's disease and other dementias continue to rise
- The challenge for many health care professionals is how to provide these clients with effective wellness programming

# Steps to Program Planning

## Step 1: Engaging participants

- Engage with individual participants by listening and talking to them and understanding their responses
- Including watching or taking part in activities
- Caregivers, family and friends have a useful contribution to make as well
- Find historical activities, interests or passions of individuals

## Step 2: Assessment of potential

- Identifying what to include rather than exclude.
- Focus on what individuals can do, would like to do and would likely benefit from most, and how these things tie into available opportunities.
- I.e. if people fall regularly, propose activities that will improve their strength and balance and reduce their risk of falls and fractures, rather than limit physical activity opportunities.

## Step 2: Assessment of potential

- Avoid temptation of lowering our expectations for people living with dementia
- “think big” in terms of what each individual can achieve.

## Step 3: Evaluation and Success

### Evaluate:

- The extent to which an individual could initiate and maintain physical activity participation
- Quantitative and Qualitative Assessments of the physical activity experience- including, most importantly, feedback from the individual, caregivers and family members.

## Step 4: Evaluation and Success

- Measures of success should be flexible.
- Success can be measured by engagement and enjoyment as by statistics or achievements on any particular test.
- Single case studies and individuals histories/diaries can prove just as powerful and meaningful to all concerned.
- Monitor and review skills and experiences in implementing wellness programs.

# Agreeing Goals

- Recent loss of mobility and independence
- Increased periods of time sitting and watching the world go by, plus signs of lowered mood and periods of agitation.
- A loss of walking ability (gait and balance) resulting in a loss of thigh strength and balance

**Goals of program:** to maintain Mary's independence by improving leg strength improving standing balance and participating in a regular walking program

# Key Program Components

- **Physical tasks**

- leg strengthening exercises, performing a Sit to Stand, improving stand balance and undertaking a regular walking program

- **Motivational strategies**

- including activity with personal meaning and relevance to increase motivational goal-setting

- **Behavioral support**

- reinforcing regular physical activity, successes and achievements (immediate feedback during and after walks)

- **Environmental support**

- using the built environment to assist the program.

# Implementation

## Physical activity strategies

- Break down elements of physical tasks into smaller tasks
- Use simple, precise verbal instructions
- Provide alternative strength and balance activities
- Use clients historical activities (ex. dance) to stimulate balance activities through participation in a twice weekly dance group.

# Implementation

## Motivational strategies

- Adopt the key message “Get Up and Go”
- Set appropriate tasks and goals
- Break tasks down into smaller and achievable goals
- Find ways of recording the experience to prompt client and remind her of successes and achievements

# Implementation

## Behavioral support strategies

- Reinforcing regular physical activity, rewards, and achievements as compared to LH
- Initiate walking through wellness staff's cues and prompts for self-starting
- Reinforce behavior through dementia staff, family and friend visitors
- Follow through programming

# Implementation

## Environmental support strategies

- Using the built environment to support the program
- Use safe walking routes to reinforce activity
  - Cued by colourful wall stickers,
- Plan walks at key times in the day when there is limited movement of others in the center and gardens, to create a relaxed, quiet, and 'uncluttered' environment

# Program Evaluation

- Rickly and Jones – Seniors Fitness Test Kit
- [www.humankinetics.com](http://www.humankinetics.com)
- 8 assessments in the kit
- Teach 2 of them 2 min step, lower body flexibility

# Effects of Physical Activity

*“Exercises provides an activation for those who are depressed and once a person gets started with exercises, mood usually improves”*

# Effects of Physical Activity

- Significant improvement on four cognitive measures usually after 3 months of aerobic conditioning
- Improved health and decreased levels of depression following exercise training
- Reduction of unwanted behaviours – such as pulling on clothing, making repetitive noises, swearing, aggressive acts

# Effects of Physical Activity

- Substantial gains in physical fitness and mood
- Maintenance of function in multiple language measures
- Slower than typical decline in mental status

# Considerations for Exercises

- Minimize problems arising from the declining physical and mental health
- Wanders vs non wanders
- Recognize behavioural changes that may cause the client to become agitated
- Memory loss

## ➤ Depression

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Alzheimer's Disease and Physical Activity

# Recommendations for Exercises

- Short sessions as opposed to lengthy sessions 30 min max –
- Morning sessions vs afternoon
- Low intensity exercises to start
- Exercise tolerance
- Guided on an individual-basis



# Exercise Programming

Modes	Goals	Intensity/ Frequency/ Duration	Time to goal
<b>Aerobic</b>			
<ul style="list-style-type: none"><li>•Enjoyable activities involving large muscle groups</li><li>•Familiar activities</li></ul>	<ul style="list-style-type: none"><li>•Increase functional health</li><li>•Increase endurance necessary for community ambulation</li></ul>	<ul style="list-style-type: none"><li>•Monitor HR</li><li>•40-60 min/session (may be broken up into smaller 15-20 min activities)</li></ul>	<ul style="list-style-type: none"><li>•Emphasize enjoyment rather than performance improvements</li><li>•Increase duration by adding daily activities that require exercise</li></ul>

# Sample Exercise Case Study

- 72 year old healthy-appearing male
- Suspected of having AD due to:
  - 2 years of unusual memory loss
  - Deterioration of language and perception
  - Difficult performing basic ADLs

# Sample Exercise Case Study

## ➤ Exercise Program Goals

1. Maintain functional independence
2. Improve strength and balance
3. Promote regular physical activity participation
4. Set specific number of steps/day and provide pedometer to monitor daily activity

# Sample Exercise Case Study

Mode	Frequency	Duration	Intensity	Progression
Aerobic	4-5 sessions/week	20 min	RPE 10-14	Add 5 min to activity as tolerated
Strength	3 sessions/week	1-3 sets of 10-12 reps		Use light hand weights, add weight as needed
Flexibility / Balance	3 sessions/week	20s		Increase ROM as tolerated
Warm-up and cool-down	Before and after each session	5 min	RPE 6-7	

## Model Exercise Program

- Warm up (5-10 min): requires standing and involves a range of motion for joints to reduce stiffness. Below THR. Also recommended would be to stretch the larger muscles before engaging in aerobic training
- Aerobic Training with cognitive stimulation (15-30 min): active walk around the building/room, word associations, category fluency, famous names, sentence completions, etc. Begin slowly and increase within THR. Other options are walking on the treadmill and stationary bike

## Model Exercise Program Continued

- Rest period for water and cognitive stimulation (5min): picture descriptions, and opinions and advice questions. Slow walking and bring intensity below THR
- Strength training (10-15min): upper body and lower body exercises. Around 1-2 sets, 8-12 reps. Another option would be using machines made by MedX (geared towards the elderly). Take into consideration the different fitness level. Start with 2 sets, 10 to 12 reps with 30 second rest in between
- Rest period for water with cognitive stimulation (5 min): story telling with pros and cons
- Balance Training (5-10 min). Standing on one leg and dynamic: walking heel to toe exercising

# Additional Exercise Examples

## ➤ Strength Training

➤ Squatting at different levels

➤ Lateral Elevation of the legs in a standing position and rising on the toes

➤ Simply standing and sitting slowly



# Additional Exercise Examples

- Balance Exercises
- Walking skills
- Transfer exercises
- Functional base of support exercises

# **Practice Guidelines for Exercise Programs Targeted to Clients with Alzheimer's Disease and Dementia**

## **1.) Follow-up assessments**

-Longer learning periods may be required for this population. Therefore, follow-up assessments should be completed at least 2-3 months after baseline in order for the participant to demonstrate a noticeable change in exercise performance (ALCOA).

## **2.) Strengthening exercises**

-Strengthening exercises should focus on the lower body in order to aid the individual to gain or maintain functional mobility and independence (ALCOA).

### **3.) One-on-one supervision**

-One-on-one supervision may be necessary in order to limit distractions, get their attention, make eye contact, pay attention to their reactions, and allow them time to respond to instructions (3).

### **4.) Environment**

-Exercise should take place in a quiet, calm, familiar environment to limit the individual's feeling of being threatened (3).

### **4.) Structure and repetition**

-Structure and repetition are the keys to success (use the same training room, equipment, exercise leader, and routine) for exercise programs targeted to this population, due to their memory impairments (3).

## **5.) Cardiorespiratory training**

-A minimum of 3 sessions per week of cardiorespiratory training is recommended in order to demonstrate desired health benefits (1, 2, 5)

## **6.) Perform balance exercises**

-Balance exercises are important to help reduce the risk of falls. For this population, prognosis for full recovery from a major fall is extremely poor (5).

## **7.) Proceed in a logical and consistent sequence**

-Ensuring that the exercise proceeds in a logical and consistent sequence helps the individual learn more easily. Verbal and visual cues should be given as often as necessary to ensure safety and correct technique (2).

## **8.) When leading exercises (3, 4):**

- keep instructions simple
- build on familiar activities
- be flexible
- praise and encourage
- use demonstrations
- Make it fun!

## **9.) Communication technique**

-Since individuals in this population may have difficulty following instructions because they do not understand or they are unable to pay attention to what has been said, a speaker should (3):

- maintain eye contact
- speak slowly and clearly
- give one message at a time
- use closed or “yes-no” questions
- repeat information using the same words
- use actions as well as words
- allow participants enough time to respond to requests  
directions

## **10.) Cognitive activities to help maintain attention (3)**

-It is often difficult to get this population to perform aerobic activities long enough to gain physical benefits. Cognitive activities may help them maintain attention while using a treadmill or stationary bike for a longer period of time (3).

-Cognition or language activities include: category fluency, word association, word similarity, and sentence completion (3).

## **11) Use of music should be carefully considered (3)**

-In the case where you need a participant's full attention (during stretching or strength training components) music should not be used to limit his/her distraction (3).

-When performing aerobic exercises (such as jogging or dancing) using music that was popular when the participant was young may encourage him/her to move (3).

-This should be evaluated on an individual basis (3).

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**Contact** [www.uwo.ca/actage](http://www.uwo.ca/actage)



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