



Decision Box

Mild Problems with Thinking or Memory in Older Adults How to Maintain Mental Capacities

THIS DOCUMENT IS AIMED AT...

- Older adults living in the community
- The caregivers of those people, where applicable

THIS DOCUMENT IS DESIGNED TO...

- Inform people of the benefits and harms of the available options to improve mental capacities
- Prepare people to discuss options with healthcare professionals
- Help people choose an option that respects their priorities

TABLE OF CONTENTS

INTRODUCTION

| | |
|---------------------------------------|---|
| Mild problems with thinking or memory | 3 |
|---------------------------------------|---|

EXPLORING THE OPTIONS TO IMPROVE YOUR MENTAL CAPACITIES

| | |
|--|---|
| Brain Exercises | 4 |
| Brain Exercises on the Computer | 5 |
| Physical Activity Tailored to Older Adults | 6 |
| Watchful Waiting | 7 |

CLARIFYING YOUR PRIORITIES

8

CHOOSING AN OPTION

9

LIST OF CONTACTS TO ACCESS SERVICES

9

GLOSSARY

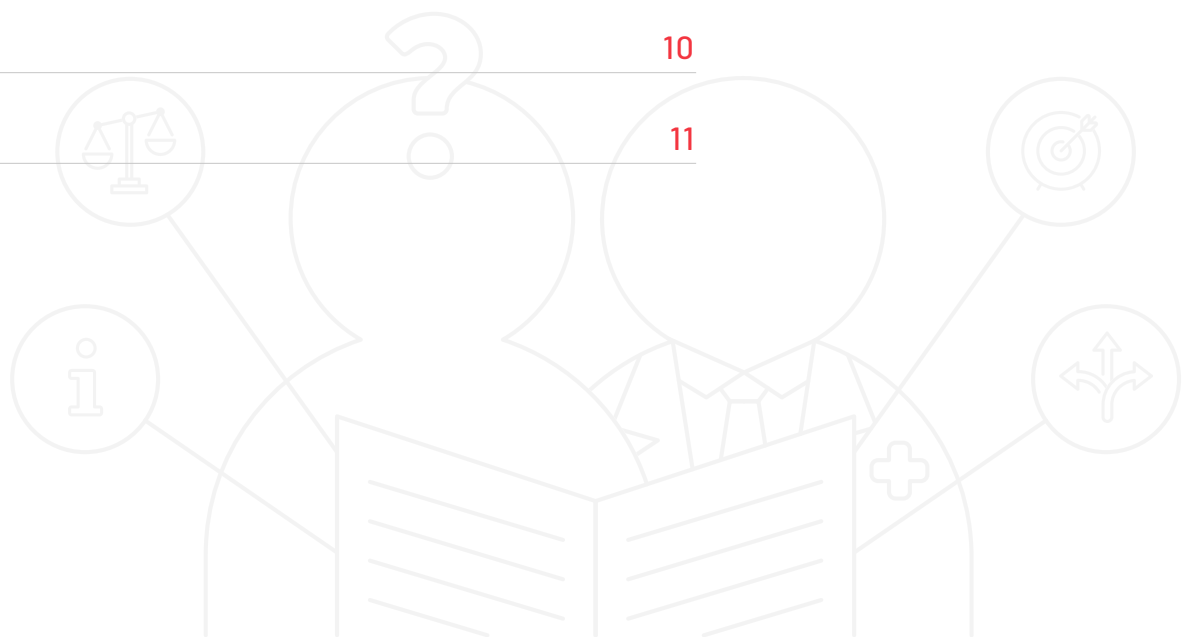
10

CREDITS

10

REFERENCES

11





Mild problems with thinking or memory

Older adults who suffer from brain diseases experience problems in a more significant way than people who are aging normally. They may experience memory loss and difficulties with thinking, problem-solving or language. **When these shortcomings are mild, people are often aware they are affected, and develop mechanisms to compensate for them.**

Causes

Certain **diseases** can cause problems with thinking or memory: **Alzheimer's, Parkinson's, heart failure, stroke***.

Depression and sleep apnea*, can also cause problems with thinking or memory that resemble those experienced in mild brain diseases. When these problems are treated, mental capacities sometimes improve.

Progression

Progression is uncertain. For every 100 people with mild thinking or memory problems...

- about **40** will progress to major thinking or memory problems within 5 years of diagnosis
- about **40** will improve their mental capacities within 5 years of diagnosis, **but half of those people will develop major problems later on**
- **about 20 remain stable**

Taking your priorities into account

Depending on your priorities, you can choose whether or not to make changes. The choice is **up to you** because...

- **Progression** of mild thinking or memory problems is **uncertain**.
- **Various options exist** to maintain or improve mental capacities:
 - However, **their long-term impacts on the onset of major thinking or memory problems are uncertain**.
 - These options can cause **benefits or harms**. **It is difficult to predict how they will work for you**.
 - You are more likely to **stick to a lifestyle change or an option** that you chose yourself.
 - You are more likely to **stick to a treatment** that you chose yourself.

We recommend that...

- The decision take into account the person's **values and priorities**
- The decision is **shared** among the healthcare professional, the person and, if necessary, the caregiver

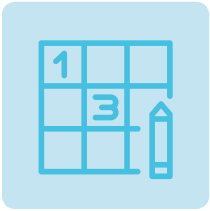
* See Glossary p. 10





OPTIONS

Explore the options



Brain Exercises

Consists of doing activities and games that **stimulate mental capacities**, e.g., reading, crosswords, sudoku. These activities can either be done **individually**, or in **a group under the supervision of a professional**.

BENEFITS

↑↑ General mental capacities ⊕⊕⊕○

For every 100 older adults with mild thinking or memory problems who do brain exercises, **15** improve their **mental capacities** due to the exercises.

↑↑ Working memory ⊕○○○

For every 100 older adults with mild thinking or memory problems who do brain exercises, **47** improve their **working memory*** due to the exercises.

Long-term memory and executive function ⊕

Current research does not show any effect of brain exercises on **long-term memory*** or **executive function*** of older adults with mild thinking or memory problems.

HARMS

No adverse effects ⊕

No negative side-effects of brain exercises done individually have been reported among older adults with thinking or memory problems.

↑↑ Anxiety to do well ⊕

Older adults may feel some **anxiety to do well** if brain exercises are done in a group.

PRACTICAL ISSUES

↑↑ Cost ⊕

Brain exercises can be done individually at home at limited costs.

Supervised brain exercises can be accessed through local community health and services centers, or hospitals, but they require an external referral from an attending physician. There may be a waiting list to access these services. Private clinics allow easier access. In private memory clinics, costs are about \$155 per hour.

* See Glossary p. 10

CONFIDENCE IN THESE RESULTS:

⊕⊕⊕⊕ **High:** Further research is very unlikely to change our confidence in the estimate of effect.

⊕⊕⊕○ **Moderate:** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

⊕⊕○○ **Low:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

⊕○○○ **Very low:** Any estimate of effect is very uncertain.

⊕ **Not evaluated** due to a lack of an estimate of effect.





OPTIONS

Explore the options



Brain Exercises on the Computer

Consists of using the computer to do **activities and games** to **stimulate mental capacities**, e.g. video games. The computer can provide real-time performance feedback and can adjust to the person's ability level.

BENEFITS

↑ General mental capacities ⊕○○○

For every 100 older adults with mild thinking or memory problems who do computer-assisted brain exercises, **19** improve their **mental capacities** due to the exercises.

HARMS

↑ Anxiety ⊘

When they start doing computer-based brain exercises, some older adults **feel anxious about using an unfamiliar technology**.

PRACTICAL ISSUES

↑ Cost ⊘

Computer-based brain exercises **require access to a computer**. **The programs also need to be purchased**: the costs are variable depending on the program.

CONFIDENCE IN THESE RESULTS:

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- ⊘ **Not evaluated** due to a lack of an estimate of effect.





OPTIONS

Explore the options



Physical Activity Tailored to Older Adults

Physical activity programs can be **adapted to older adults**. They may include **walking, water exercises, balance or flexibility exercises, and weight training**. They can be done **individually at home** or **with other people**. The activities should produce a sensation of warmth, and make you breathe harder. You should be able to hold a conversation while exercising but be too short of breath to sing.

BENEFITS

↑↑ General mental capacities ⊕○○○

Older adults with mild thinking or memory problems who partake in regular physical activity **improve their mental capacities** compared to older adults who don't.

↑↑ Other health benefits ⊕⊕⊕⊕

Regular physical activity has several additional benefits, for example:

- reduced risk of chronic disease and premature death
- functional independence and mobility
- improved fitness and bone health
- reduced risk of cardiovascular disease
- improved mood and self-esteem
- reduced risk of falls
- improved sleep.

HARMS

↑↑ Muscle, bone, or joint problems ⊕○○○

Some older adults feel **temporary muscle soreness** after exercising. They can also experience **muscle, bone or joint problems** (for example minor strains, tendonitis, exacerbation of osteoarthritis, or joint pain).

PRACTICAL ISSUES

Time required ⊕

In general, to experience positive impacts from physical activity, people must be physically active at least 3 weeks, either for 20 minutes 3 times a week, or for 2 hours once a week. Whatever the duration and frequency of the exercise, **it takes time**.

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OPTIONS

Explore the options



Watchful waiting

Consists of keeping an eye on the evolution of your mental capacities without undertaking treatment or changing your lifestyle.

BENEFITS

Avoid making a change if the impacts are uncertain ⊖

Among people who make changes to maintain or improve their cognitive function, a certain proportion will nonetheless develop more severe thinking or memory problems. They may be **disappointed** that the steps they took did not allow them to reach their goals.

Take the chance that things will improve on their own ⊕ ⊕ ⊕ ⊖

Of 100 older adults with mild thinking or memory problems, approximately **20** will see their **mental capacities improve on their own**.

↓ Inconveniences associated with the available options

All the available options to improve mental capacities cause some **inconveniences**. These inconveniences are reviewed in the **previous pages of this document**. People who do not undertake any new treatment or change to their lifestyle will not experience any of these inconveniences.

HARMS

↓↓ Odds of improving or maintaining mental capacities ⊖

People who choose watchful waiting without making any changes are **less likely to improve their mental capacities** than those who do brain exercises or physical activity.

↑↑ Feeling of helplessness ⊖

Failing to make changes to one's lifestyle or undertake treatment to prevent loss of mental capacities can lead to **feelings of helplessness and distress**.

CONFIDENCE IN THESE RESULTS:

⊕ ⊕ ⊕ ⊕ **High:** Further research is very unlikely to change our confidence in the estimate of effect.

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⊖ **Not evaluated** due to a lack of an estimate of effect.





PRIORITIES

Improve your mental capacities while respecting your priorities

SELECT WHAT IS MOST IMPORTANT TO YOU AND LOOK AT THE OPTIONS ASSOCIATED TO IT.*

CHECK A SINGLE ITEM AT THE TIME

Avoid making a change if the impacts are uncertain

POSSIBLE OPTIONS TO IMPROVE YOUR MENTAL CAPACITIES:

- Watchful waiting

Avoid feeling helpless

POSSIBLE OPTIONS TO IMPROVE YOUR MENTAL CAPACITIES:

- Brain exercises
- Computer-assisted brain exercises
- Physical activity tailored to older adults

Avoid anxiety to do well

POSSIBLE OPTIONS TO IMPROVE YOUR MENTAL CAPACITIES:

- Computer-assisted brain exercises
- Physical activity tailored to older adults
- Watchful waiting

Improve my health and well-being

POSSIBLE OPTIONS TO IMPROVE YOUR MENTAL CAPACITIES:

- Physical activity tailored to older adults

Other:

List the options **to improve your mental capacities** that support this priority:

* In this exercise, the benefits and harms of the available options (see previous pages) become priorities to consider. For example, if an option causes some harms, limiting these harms may be a priority for some people and they will want to consider other options.





CHOOSING AN OPTION

Which option do you prefer?

Are you comfortable with your choice?

YES NO

| | | | |
|-------------------------------|--|-----------------------|-----------------------|
| SURE OF MYSELF | Do you feel SURE about the best choice for you? | <input type="radio"/> | <input type="radio"/> |
| UNDERSTAND INFORMATION | Do you know the benefits and risks of each option? | <input type="radio"/> | <input type="radio"/> |
| RISK-BENEFITS RATIO | Are you clear about which benefits and risks matter most to you? | <input type="radio"/> | <input type="radio"/> |
| ENCOURAGEMENT | Do you have enough support and advice to make a choice? | <input type="radio"/> | <input type="radio"/> |

IF YOU ANSWERED NO TO ANY OF THE QUESTIONS ABOVE, TALK TO YOUR HEALTH PROFESSIONAL.

SURE TEST
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LIST OF CONTACTS TO ACCESS SERVICES

The *Caredove* website lists the available services in your region.

- Alberta: www.caredove.com/auaalberta
- Ontario: www.caredove.com/auawaterloowellington
- Quebec: www.caredove.com/auaquebec





GLOSSARY

Definitions

Attention

The ability to focus one's mind on a specific aspect of the environment, allowing the individual to select information and to process it.

Executive function

Range of high level cognitive skills including planning, sequencing, switching attention between tasks, decision making, problem solving.

Heart disease

Heart disease refers to a group of conditions that affect the structure and functions of the heart and has many root causes. Conditions include angina, heart attack, hypertension, and stroke.

Long-term memory

Permanent storage of information.

Stroke

A stroke happens when blood stops flowing to any part of the brain, damaging brain cells. The effects of a stroke depend on the part of the brain that was damaged and the amount of damage done.

Sleep apnea

A serious disorder that causes breathing to stop repeatedly during sleep.

Working memory (short-term memory)

Abilities that relate to the temporary storage, organization, and utilisation of information in one's mind.

CREDITS

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Introduction

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Sheridan et al. [2006]. "The impact of a decision aid about heart disease prevention on patients' discussions with their doctor and their plans for prevention: a pilot randomized trial". *BMC health services research* 6(1):121.

Mental Exercise

General mental capacities

Jeong et al. [2016]. *Psychother Psychosom* 85: pages 198-207. Design: Randomized trial in 3 experimental groups, i.e., group-based cognitive intervention, home-based cognitive intervention, and the control group; Participants: 293 persons age 50 to 85 with mild cognitive impairment; Intervention: Home-based individual cognitive training 5 times a week or group-based cognitive training twice a week for 12 weeks; Follow-up: 6 months.

Working memory

Martin et al. [2011]. *Cochrane Database Syst Rev* 1: pages CD006220. Design: Systematic literature review of 36 randomized trials, including 3 about people living with mild cognitive impairments; Participants: 2,229 people aged above 60 years, and presenting mild cognitive impairment; Intervention: Cognitive training; Follow-up: 1.5 to 9 months.

Long-term memory and executive function

Martin et al. [2011]. *Cochrane Database Syst Rev* 1: pages CD006220. Design: Systematic literature review of 36 randomized trials, including 3 about people living with mild cognitive impairments; Participants: 2,229 people aged above 60 years, and presenting mild cognitive impairment; Intervention: Cognitive training; Follow-up: 1.5 to 9 months.

Buschert et al. [2011]. *J Alzheimers Dis* 25: 679-94. Design: Randomized trial; Participants: 43 people aged 50 years old or more presenting mild cognitive impairment or Alzheimer's disease (only the results pertaining

to MCI are reported in this Decision Box); Intervention: Group-based cognitive training during 6 months (20 sessions of 2 hours each); Follow-up: 1-4 weeks.

No adverse effects

Gates et al. [2011]. *BMC Geriatrics* 11. Design: Systematic literature review including 10 randomized trials; Participants: 305 individuals aged 65 years old or more, presenting mild cognitive impairment; Intervention: Cognitive training; Follow-up: 3 to 6 months.

Bahar-Fuchs et al. [2013]. *Cochrane Database Syst Rev* 6: pages CD003260. Design: Systematic literature review including 11 randomized trials; Participants: 675 individuals presenting with Alzheimer's disease or vascular dementia; Intervention: Cognitive training; Follow-up: 2-9 months.

Finn et al. [2011]. *Brain impairment* 12: pages 187-199. Design: Randomized pilot study; Participants: 25 individuals aged 60 years old or more, presenting with mild cognitive impairment; Intervention: Computer-based cognitive training (30 sessions within 11 weeks); Follow-up: Measures were taken right after the intervention.

Anxiety to do well

Kueider et al. [2012]. *PLoS One* 7: pages e40588. Design: Systematic review of 38 experimental studies; Participants: 3,205 individuals aged 55 and over with no mild neurocognitive impairment or Alzheimer's disease; Intervention: Computer-based cognitive training for 20 to 120 minutes per day; Follow-up: 2 to 68 weeks.

Brain Exercises on the Computer

General mental capacities

Meta-analysis completed by the Decision Box team, based on the study of Hill et al. [2016]. *Am J Psychiatry*: Nov 14. Design: Systematic literature review including 11 randomized trials; Participants: 686 individuals aged 60 years old or more, presenting with mild cognitive impairment; Intervention: Computer-based cognitive-training; Follow-up: 8-48 weeks.

Anxiety

Klimova B. Computer-Based Cognitive Training in Aging. *Frontiers in Aging Neuroscience*. 2016;8:313.

Physical activity tailored to older adults

General mental capacities

Strohle et al. [2015]. *Am J Geriatr Psychiatry* 23: 1234-49. Design: Systematic review of 6 randomized controlled trials; Participants: 6 443 people aged above 50 years, and presenting with mild cognitive impairment; Intervention: donepezil, galantamine, memantine, rivastigmine, Ginkgo Biloba, or physical activity during 24 weeks; Follow-up: variable depending on the study.

Other health benefits

Nelson et al. [2007]. *Med Sci Sports Exerc*;39(8):1435-45. Physical activity and public health in older adults: recommendation from the American College of Sports Medicine and the American Heart Association.

Muscle, bones, or joint problems

El-Khoury et al. [2013]. *BMJ* 2013, 347:f6234. Design: Systematic review



of 17 randomised controlled trials; Participants: 4 305 older people aged 60 years and more living at home; Intervention: Physical activity (eg. Tai chi, balance exercises, strength exercises) with the aim of preventing falls.

Liu, C.-j., & Latham, N. K. [2009]. Cochrane Database Syst Rev(3). Design: Systematic review of 121 randomised controlled trials; Participants: 6700 older people aged 60 years and more; Intervention: Progressive resistance strength training; Follow-up: Varied from the end of the intervention to 1 year.

Time required

Strohle et al. [2015]. Am J Geriatr Psychiatry 23: 1234-49. Design: Systematic review of 6 randomized controlled trials; Participants: 6,443 people aged above 50 years, and presenting with mild cognitive impairment; Intervention: donepezil, galantamine, memantine, rivastigmine, Ginkgo Biloba, or physical activity during 24 weeks; Follow-up: variable depending on the study.

Watchful Waiting

Take the chance that things will improve on their own

Roberts et al. [2014]. Neurology, 82 (4), 317-325. Design: Prospective cohort study; Participants: Individuals aged 70 years old or more; Follow-up: 5 years.

Odds of improving or maintaining mental capacities

Martin et al. [2011]. Cochrane Database Syst Rev 1: pages CD006220. Design: Systematic literature review of 36 randomized trials, including 3 about people living with mild cognitive impairments; Participants: 2,229 people aged above 60 years, and presenting mild cognitive impairments; Intervention: Cognitive training; Follow-up: 1.5 to 9 months.

Meta-analysis completed by the Decision Box team, based on the study of Hill et al. [2016]. Am J Psychiatry: Nov 14. Design: Systematic literature review including 11 randomized trials; Participants: 686 individuals aged 60 years old or more, presenting with mild cognitive impairment; Intervention: Computer-based cognitive-training; Follow-up: 8-48 weeks.

Feeling of helplessness

Roberts et al. [2010]. Neurology 5: pages 425-431. Design: Cross-sectional survey; Participants: 420 American neuropsychologists.

Kaduszkiewicz et al. [2014]. Ann Fam Med 2: pages 158-165. Design: Prospective cohort study, on the factors predicting progression of cognitive decline; Participants: 357 individuals aged 75 years old or more; Follow-up: 3 years.

