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Project Summaries

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## Can self-efficacy training improve memory and functional activation in older adults with Mild Cognitive Impairment? A proof-of-concept intervention study

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# Can self-efficacy training improve memory and functional activation in older adults with Mild Cognitive Impairment? A proof-of-concept intervention study

## Background

Dementia is one of the most pressing health care issues of the 21st century. Mild cognitive impairment (MCI) is a well-recognized risk factor for dementia. MCI is defined as cognitive decline greater than that expected for an individual's age and education level but does not interfere notably with everyday function. The likelihood of an older adult developing Alzheimer's disease (AD) is roughly 10 times greater for those with MCI than without; however, not everyone with MCI will go on to develop AD. There is a need to identify modifiable individual characteristics that may alter the trajectory of cognitive decline.

The confidence you have in your ability to accomplish a task, known as self-efficacy, is an important psychological variable that can influence how you perform various tasks. Previous studies have shown that self-efficacy is a modifiable trait that can be improved and bolstered with training and practice. In particular, memory self-efficacy has been shown to be modifiable for older adults and can result in performance improvement on memory tasks.

## The Problem

While there is evidence to support the importance of memory self-efficacy for successful memory performance in older adults, the underlying neurological changes that accompany these performance changes have not been explored. We have preliminary cross-sectional evidence that self-efficacy may be neuroprotective against cognitive decline due to its associations with both brain structure and function. But can memory self-efficacy training actually change activation in the brain during a memory task?

## Funding Program

**BrainsCAN Accelerator Grant: Stimulus**

Awarded: \$39,800

## Additional BrainsCAN Support

Human Cognition and  
Sensorimotor Core  
Imaging Core

## Western Faculty, Group or Institution

School of Kinesiology, Faculty of  
Health Sciences

## Keywords

Aging, Alzheimer's disease, fMRI

## Related

None

## The Project

The goal of this study is to examine the changes in brain activity after a memory self-efficacy training program to better understand the mechanisms of memory self-efficacy. We will conduct a proof-of-concept six-week memory self-efficacy intervention in older adults with MCI, in order to demonstrate that self-efficacy impacts brain function. This will allow us to determine whether self-efficacy interventions may be a potential strategy for combating AD in the future.

Our study will also include neuroimaging. Through the use of functional Magnetic Resonance Imaging (fMRI), we will be able to see objectively if there are changes in brain function as a result of the intervention, rather than relying on self-report or memory performance.

Our proposed study represents the critical first step in this line of research before future prospective studies can be conducted to examine whether such changes in self-efficacy result in long term changes in brain function and structure, as well as the potential for protection against dementia.

## Western Researchers

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