

Effects of aerobic exercise on cognition and brain health in older adults at increased risk of Alzheimer disease and dementia: probing the biological mechanisms using translational physiology.

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Country

Canada

Title of project or programme

Effects of aerobic exercise on cognition and brain health in older adults at increased risk of Alzheimer disease and dementia: probing the biological mechanisms using translational physiology.

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CIHR

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5.0

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords

Research Abstract

Cerebral blood flow (CBF) is highly regulated by carbon dioxide and oxygen in the arterial blood. This process becomes impaired with cerebrovascular disease processes and by aging. Aging is associated with a progressive decline in CBF, which is a major risk factor for Alzheimer disease (AD) and dementia. In premenopausal women, this decline is not as pronounced as in men but it appears to be accelerated after menopause and persists into old age. Physical inactivity, a modifiable risk factor for cognitive decline and dementia, may also contribute to the decline in CBF with advancing age in men and women. However, the mechanism by which physical activity exerts its protective effect on the brain is unclear. If physical activity is a significant modulator of CBF, one would predict that men and women who are more active would have fewer incidences of cerebrovascular disease than those who are sedentary. A suitable experimental design would require a set of studies in sedentary men and women, and then placing these sedentary individuals on an exercise training programs. This approach would enable the possibility of using this knowledge to impact predictors for dementia, or at least how active living may prevent vascular problems in the brain from occurring. We propose studies in sedentary men and women, who are at increased risk of developing AD and dementia, to address the question: What are the effects of aerobic exercise on CBF and cognitive function in older men and women? This approach will allow us to study the interactions between the cerebral circulation and cognitive function, and may provide powerful diagnostic tools to help identify those individuals at risk of dementia. This work may have a positive impact in helping delay or prevent the onset of disabilities due to diseases like AD and dementia.

Lay Summary

Further information available at:

Types:

Investments > €500k

Member States:

Canada

Diseases:

Alzheimer's disease & other dementias

Years:

2016

Database Categories:

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