

Concurrent Aerobic Exercise and Cognitive Training to Prevent Alzheimer's in at-risk Older Adults

<https://neurodegenerationresearch.eu/survey/concurrent-aerobic-exercise-and-cognitive-training-to-prevent-alzheimer%20s-in-at-risk-older-adults/>

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Contact information of lead PI Country

USA

Title of project or programme

Concurrent Aerobic Exercise and Cognitive Training to Prevent Alzheimer's in at-risk Older Adults

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1

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Research Abstract

Abstract The proposed project will implement and test a unique Virtual Reality Cognitive Training (VRCT) combined with concurrent cycling on a recumbent stationary cycle, also known as exergame that seamlessly integrates specific cognitive tasks into a virtual environment and is synchronized with cycling to promote cognition. Cycling through an interesting virtual environment will motivate and engage the older adult to participate in the exercise, and VRCT could augment cycling's effects on cognition. A further innovation is that the exergame will be developed as an Apple TV application, making it widely accessible and available. It will provide a low-cost VRCT exergame option that currently does not exist, one that is affordable and compatible with almost any stationary cycle. This project is significant because treatment that delays the onset of Alzheimer's Disease (AD) by five years could save the U.S. economy an estimated \$89 billion by 2030 and no drugs can yet prevent, cure, or even slow AD. Aerobic exercise and cognitive training are two such promising interventions. Emerging mechanistic studies further suggest that the two interventions together may have a synergistic, superior cognitive effect than either intervention alone. The purpose of this project is to demonstrate the feasibility and efficacy of the exergame intervention on cognition through two phases. In Phase I, a prototype of the VRCT exergame will be developed, followed by a feasibility testing using a single-group mixed methods design. In Phase II a more fully-featured version of the VRCT exergame will be developed followed by a an RCT which will randomize subjects on a 2:1:1 allocation ratio to 3 parallel groups (exergame:cycling only:attention control). Mixed methods will be used to assess outcomes in both phases. This project is innovative because the older adult user will be able to cycle through a virtual world displayed on a flat screen TV with specific assigned cognitive tasks to accomplish during cycling; the exergame will be widely accessible and available; and the exergame provides a low-cost VR exergame option that currently does not exist.

Further information available at:

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United States of America

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