

Investigating Gains in Neurocognition in an Intervention Trial of Exercise

<https://neurodegenerationresearch.eu/survey/investigating-gains-in-neurocognition-in-an-intervention-trial-of-exercise/>

Principal Investigators

ERICKSON, KIRK I

Institution

UNIVERSITY OF PITTSBURGH AT PITTSBURGH

Contact information of lead PI

Country

USA

Title of project or programme

Investigating Gains in Neurocognition in an Intervention Trial of Exercise

Source of funding information

NIH (NIA)

Total sum awarded (Euro)

€ 20,091,311.01

Start date of award

15/09/2016

Total duration of award in years

1

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords

Acquired Cognitive Impairment... Aging... Alzheimer's Disease... Alzheimer's Disease including Alzheimer's Disease Related Dementias (AD/ADRD)... Behavioral and Social Science... Brain Disorders... Clinical Research... Clinical Research - Extramural... Clinical Trials and Supportive Activities... Dementia... Diagnostic Radiology... Effectiveness Research... Neurodegenerative... Neurosciences... Physical Activity... Prevention... Translational Research

Research Abstract

Abstract Despite the ubiquity of normal age-related cognitive decline there is an absence of effective approaches for improving neurocognitive health. Fortunately, moderate intensity physical activity (PA) is a promising method for improving brain and cognitive health in late life, but its effectiveness remains a matter of continued skepticism and debate because of the absence of a Phase III clinical trial. Here we propose a Phase III multi- site randomized clinical trial called IGNITE (Investigating Gains in Neurocognition in an Intervention Trial of Exercise) to more definitively address whether exercise influences cognitive and brain health in cognitively normal older adults. We are proposing a 12-month, multi-site, randomized dose-response exercise trial (i.e., brisk walking) in 639 cognitively normal adults between 65-80 years of age. Participants will be randomized to a (a) moderate intensity aerobic exercise condition at the public health recommended dose of 150 minutes/week (N=213), (b) a moderate intensity exercise condition at 225 minutes/week (N=213), or (c) to a stretching-and-toning control condition for 150 minutes per week (N=213). Participants will meet 3 days/week for site-based exercise and do home-based activity on two more days of the week for 12 months. A comprehensive state-of-the-science battery of cognitive, MRI, amyloid imaging, physiological biomarkers, cardiorespiratory fitness, physical function, and quality of life measures will be assessed at baseline and after completion of the intervention. We have assembled a highly creative, productive, and interdisciplinary team with a long history of collaboration and experience conducting exercise interventions in older adults to test the following aims: Aim 1: Using a comprehensive neuropsychological battery and the NIH Toolbox, we will test whether a 12-month moderate intensity exercise intervention improves cognitive performance in older adults and (b) test whether the improvements occur in a dose-dependent manner. Aim 2: We will test whether a 12- month PA intervention augments MRI markers of brain health and whether these changes happen in a dose- dependent manner. Aim 3: We will test the hypothesis that cardiometabolic, inflammatory, and neurotrophic changes mediate improvements in brain and cognition. Aim 4: We will examine subgroups (i.e., individual differences) that attenuate or magnify the effect of the intervention on cognitive, brain, and physiological systems to better understand the factors that predict 'responders' versus 'non-responders' to the intervention. We will explore three categories of variables: (1) demographic (e.g., age) (2) genetic (e.g., APOE), and (3) baseline A β burden. Exploratory Aims: We will explore (a) whether baseline brain health metrics predict adherence and compliance to 12-months of PA, and (b) the utility of multi-modal brain imaging analytical approaches to more comprehensively understand the effects of PA on the aging brain. The results from this trial could transform scientific-based policy and health care recommendations for approaches to improve cognitive function in cognitively normal older adults.

Lay Summary

Narrative In this Phase III randomized clinical trial, we will examine the effects of aerobic exercise on cognitive and brain function in late adulthood. We will be collecting a battery of cognitive, neuroimaging, amyloid, psychosocial, physical function measures, and blood-based

biomarkers to examine the outcomes and mechanisms of the intervention.

Further information available at:

Types:

Investments > €500k

Member States:

United States of America

Diseases:

Alzheimer's disease & other dementias

Years:

2016

Database Categories:

N/A

Database Tags:

N/A