Mini Review
Volume 12:09, 2022

Journal of Sports Medicine & Doping Studies

ISSN: 2161-0673

Open Access

Alzheimer's disease and Aerobic Exercise

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Abstract

Observational evidence in humans suggests higher levels of cardiorespiratory fitness and physical activity are associated with greater brain volume, less brain atrophy, slower dementia progression, and reduced risk of dementia. Increased cardiorespiratory fitness also attenuates the detrimental effects of cerebral amyloid on cognition. Randomized controlled trials of aerobic exercise (AEx) in individuals with mild cognitive impairment (MCI) and subjective memory complaints have found exercise improved cognitive function. Aerobic exercise is a low-cost, low-risk, widely available intervention that may have disease-modifying effects. Aerobic exercise offers a low-cost, low-risk, widely available intervention that may have disease-modifying effects.

Keywords: Migrant organizations • Social protection • Networks

Introduction

Aerobic exercise is a low-cost, low-risk, widely available intervention that may have disease-modifying effects. Aerobic exercise offers a low-cost, low-risk, widely available intervention that may have disease-modifying effects. Another study of people with MCI showed some cognitive test score improvement when analyses were restricted to compliant exercisers. Current evidence remains insufficient to conclude that exercise is an effective therapeutic for AD or cognitive decline. The public health implications of demonstrating that aerobic exercise alters the AD process are significant.

Our goal for this pilot study was to see if a community-based, structured aerobic exercise intervention that adhered to standard public health guidelines (150 minutes of moderate intensity aerobic exercise per week) was effective in the beginning. A well-defined sample of people with AD-related cognitive impairment would benefit from aerobic exercise over non-aerobic stretching and toning exercises in terms of cognition, functional ability, and depression, we hypothesized. Additionally, we hypothesized that the gains in cardiorespiratory fitness would be correlated with these advantages [1,2].

Literature Review

In comparison to a ST control intervention, this pilot, randomized, controlled trial provides preliminary evidence that AEx for six months improves functional ability in early-stage AD. In addition, we discovered evidence linking improved cardiorespiratory fitness to improved memory performance and brain volume change. Our primary finding is that 26 weeks of AEx was associated with increased functional ability compared to the ST control. This finding is consistent with a growing body of evidence that enhancing cardiorespiratory fitness through exercise may be important in achieving the maximum benefits of exercise for the brain. The Disability Assessment for Dementia, a caregiver-based assessment of activities of daily living that predicts earlier time to institutionalization, was our measure of functional ability. Individuals with mild to moderate AD typically decrease by approximately one point per month on this scale (100 equates to full functional ability). We discovered that the AEx group increased by 1.5 points while the ST group decreased by 4.5 points over the course of the intervention, indicating that the intervention had a significant impact on sustained independence [3-5].

Discussion

This study looked at 15 MOs that offered their target populations both formal and informal social protection in order to assess how embedded in the network these organisations were. Three strategies were used to achieve these goals: (1) describing their organisational characteristics and work patterns in the field of social protection; (2) examining correlational factors in terms of the relevance of network partners; and (3) describing how MOs design their daily work, which functions they fulfil, and how they are connected with other actors in the field of social protection by highlighting our results. First, we discovered that MOs offer a wide variety of formal and informal forms of social protection that aid each target group's response to social dangers. In addition to providing these support services, MOs are a part of networks that typically have 21 different participants. Additionally, MOs use a variety of networking techniques to accomplish their objectives when it comes to social protection [6].

Conclusion

Our ability to detect significant group effects is hampered by the relatively small sample size of this pilot study. Although we have previously demonstrated that our community-based methods can deliver a rigorously controlled intervention of various exercise doses producing linearly increasing responses to cardiorespiratory fitness, our findings of a relationship of change in cardiorespiratory fitness with memory change and hippocampal atrophy are suggestive but do not prove cause and effect. The exercise interventions were delivered in the community, enhancing generalizability but possibly introducing variability in execution. For instance, it is still unknown if increased cardiorespiratory fitness correlates with improved memory, or if memory loss (or more advanced forms of dementia) influences measured cardiorespiratory fitness as measured by peak VO_2 levels. Although these relationships remained significant even after controlling for baseline MMSE or baseline CDR (as an index of baseline disease severity), reverse causation cannot be ruled out as an explanation for these secondary findings. Last but not least, it is essential to note that we did not make any corrections for any of the tests, increasing the likelihood of false positives.

Acknowledgement

None.

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Received: 13 September 2022, Manuscript No. jsmds-23-87350; **Editor Assigned:** 15 September 2022, PreQC No. P-87350; **Reviewed:** 27 September 2022, QC No. Q-87350; **Revised:** 03 October 2022, Manuscript No. R-87350; **Published:** 10 October 2022, DOI: 10.37421/2161-0673.2022.12.275

Conflict of Interest

None.

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How to cite this article: Baker, Juerie. "Alzheimer's disease and Aerobic Exercise." J Sports Med Doping Stud 12 (2022): 275.