

# Lifestyle and neurocognition in older adults with cognitive impairments

## A randomized trial

James A. Blumenthal, PhD, Patrick J. Smith, PhD, Stephanie Mabe, MS, et al.

Cite as: *Neurology*® 2019;92:e212-e223. doi:10.1212/WNL.0000000000006784

### Correspondence

Dr. Blumenthal  
James.Blumenthal@  
duke.edu

### Study objective

To assess the effects of aerobic exercise (AE) and the Dietary Approaches to Stop Hypertension (DASH) diet on executive functioning in adults with cognitive impairments but no dementia (CIND) and risk factors for cardiovascular disease (CVD).

### Summary results

AE improves executive functioning in such individuals, but the DASH diet does not.

### Classification of evidence

Class I.

### What is known and what this paper adds

The overlap between CVD risk factors and dementia risk factors has prompted speculation that strategies designed to reduce CVD risk may also improve neurocognition. This study provides evidence that this is true for certain health behaviors designed to reduce CVD risk.

### Participants and setting

This study recruited 160 individuals (34% male; mean age,  $65.4 \pm 6.8$  years) who had CIND, were sedentary, and either had CVD or at least 1 additional CVD risk factor besides being sedentary. This study was conducted through the Duke University Medical Center (Durham, North Carolina).

### Design, size, and duration

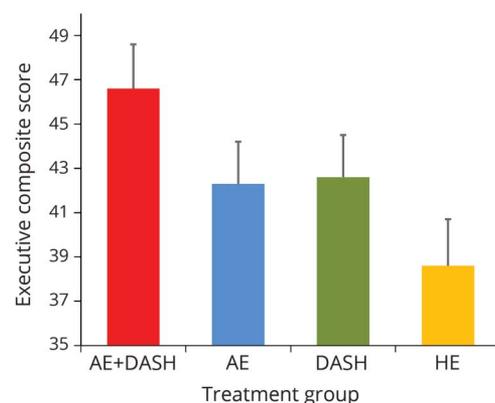
This study used a conditional randomization procedure with stratification for age, sex, Montreal Cognitive Assessment scores, and CVD histories to assign the participants to an AE-only group ( $n = 41$ ), a DASH-only group ( $n = 41$ ), an AE + DASH group ( $n = 40$ ), and a health education control group ( $n = 38$ ). The interventions were 6-month in duration. This study assessed executive functioning at baseline and postintervention timepoints with a standard neurocognitive test battery. The outcome assessors were blinded to group assignments.

### Primary outcome measures

The primary outcomes were changes in executive functioning from baseline to the 6-month postintervention timepoint.

*A draft of the short-form article was written by M. Dalefield, a writer with Editage, a division of Cactus Communications. The authors of the full-length article and the journal editors edited and approved the final version.*

**Figure** Effects of the different interventions on executive functioning performance



### Main results and the role of chance

AE was associated with improvements in executive functioning ( $p = 0.046$ ), but the DASH diet was not ( $p = 0.059$ ). The greatest improvements relative to the control group were observed in the AE + DASH group ( $p = 0.012$ ).

### Harms

No adverse events were observed.

### Bias, confounding, and other reasons for caution

This study had a relatively short duration (though longer compared to some other studies) and might have been underpowered for some subgroup analyses.

### Generalizability to other populations

This study's single-center nature and the select population may limit the generalizability of the results.

### Study funding/potential competing interests

This study was funded by the NIH. Go to [Neurology.org/N](http://Neurology.org/N) for full disclosures.

### Trial registration number

NCT01573546 on [ClinicalTrials.gov](http://ClinicalTrials.gov).

# Neurology<sup>®</sup>

## Lifestyle and neurocognition in older adults with cognitive impairments: A randomized trial

James A. Blumenthal, Patrick J. Smith, Stephanie Mabe, et al.  
*Neurology* 2019;92:e212-e223 Published Online before print December 19, 2018  
DOI 10.1212/WNL.0000000000006784

### This information is current as of December 19, 2018

<b>Updated Information &amp; Services</b>	including high resolution figures, can be found at: <a href="http://n.neurology.org/content/92/3/e212.full">http://n.neurology.org/content/92/3/e212.full</a>
<b>References</b>	This article cites 45 articles, 10 of which you can access for free at: <a href="http://n.neurology.org/content/92/3/e212.full#ref-list-1">http://n.neurology.org/content/92/3/e212.full#ref-list-1</a>
<b>Citations</b>	This article has been cited by 1 HighWire-hosted articles: <a href="http://n.neurology.org/content/92/3/e212.full##otherarticles">http://n.neurology.org/content/92/3/e212.full##otherarticles</a>
<b>Subspecialty Collections</b>	This article, along with others on similar topics, appears in the following collection(s): <b>Clinical trials Randomized controlled (CONSORT agreement)</b> <a href="http://n.neurology.org/cgi/collection/clinical_trials_randomized_controlled_consort_agreement">http://n.neurology.org/cgi/collection/clinical_trials_randomized_controlled_consort_agreement</a> <b>Cognitive aging</b> <a href="http://n.neurology.org/cgi/collection/cognitive_aging">http://n.neurology.org/cgi/collection/cognitive_aging</a> <b>Executive function</b> <a href="http://n.neurology.org/cgi/collection/executive_function">http://n.neurology.org/cgi/collection/executive_function</a>
<b>Permissions &amp; Licensing</b>	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: <a href="http://www.neurology.org/about/about_the_journal#permissions">http://www.neurology.org/about/about_the_journal#permissions</a>
<b>Reprints</b>	Information about ordering reprints can be found online: <a href="http://n.neurology.org/subscribers/advertise">http://n.neurology.org/subscribers/advertise</a>

*Neurology*® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright © 2018 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.

