

Direction of the Evidence

How effective is physical activity in reducing the rate of cognitive decline?

By Ron Feise, DC

Lautenschlager NT, Cox KL, Flicker L, Foster JK, van Bockxmeer FM, Xiao J, Greenop KR, Almeida OP. Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: a randomized trial. *JAMA* 2008;300:1027-37.

SYNOPSIS. This was a randomized controlled trial of a 24-week physical activity intervention to measure whether physical activity reduces the rate of cognitive decline among older adults at risk. Assessors of cognitive function were blinded to group membership. A total of 170 participants (who reported memory problems but did not meet criteria for dementia) were randomized, and 138 participants completed the 18-month assessment. Participants were randomly allocated to an education and usual care group or to a 24-week home-based program of physical activity.

In an intent-to-treat analysis, participants in the intervention group improved, and those in the usual care group deteriorated on the Alzheimer Disease Assessment Scale-Cognitive Subscale at the end of the intervention (effect size difference between the groups 0.74). At 18 months, the effect size difference between groups was 0.39 favoring the exercise group. Word list delayed recall

and Clinical Dementia Rating sum of boxes improved, as well. A few other tests showed no differences.

Note. A positive effect size number favors the study treatment. Following is the benchmark for effect size: a small benefit is defined as effect size of 0.2- 0.5; moderate benefit is defined as effect size of 0.5- 0.8; large benefit is defined as effect size > 0.8.¹

RESEARCH QUALITY.

Overall, this study had reasonable methodological rigor.

Quality Details: This study used the following: 1) appropriate design; 2) clearly stated inclusion and exclusion criteria; 3) concealed randomization assignment; 4) treatment methods described; 5) valid, reliable, and relevant outcome measures; 6) suitable measurement period; 7) acceptable sample size; 8) groups clinically similar at the start of the trial; and 9) acceptable loss to follow-up.

CONCLUSION. A six-month program of physical activity resulted in improved cognition over an 18-month follow-up period.

COMMENTS: *Other observational studies agree with these findings and have shown that physical activity reduces the risk of cognitive decline.*²⁻⁴ *This study's intervention re-*

sulted in 142 minutes more physical activity per week (or 20 minutes per day) than with usual care. Although the amount of physical activity undertaken by participants in the study was modest, the effects were clinically important.

*Recently, three studies investigated the effects of ingestible remedies on cognition. Price et al. concluded that low-dose aspirin does not affect cognitive function in middle-aged to elderly people at increased cardiovascular risk.*⁵ *Aisen et al. demonstrated that a regimen of high-dose B vitamin supplements does not slow cognitive decline in individuals with mild-to-moderate Alzheimer's disease.*⁶ *DeKosky et al. found that ginkgo biloba at 120 mg twice a day was not effective in reducing either the overall incidence rate of dementia or Alzheimer's disease incidence in elderly individuals with normal cognition or mild cognitive impairment.*⁷

Warning. Practitioners should not automatically use information from research studies (especially abstracts) to make decisions about patient care because health care literature suffers from inconsistent quality and frequently distorts research findings. Before relying on the findings of a research study, a practitioner

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should perform a critical appraisal to determine whether the conclusion is supported by the study's data. He or she should also locate and examine previous relevant research to integrate the current findings and form a conclusion based on the preponderance of qual-

ity evidence. Even conclusions from multiple studies do not provide a definitive answer. Rather, they indicate the *direction* of the evidence. ■

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