

Study examines change in cognitive function following physical, mental activity in older adults

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A randomized controlled trial finds that 12 weeks of physical plus mental activity in inactive older adults with cognitive complaints was associated with significant improvement in cognitive function but there was no difference between intervention and control groups, according to a report published Online First by *JAMA Internal Medicine*.

An epidemic of dementia worldwide is anticipated during the next 40 years because of longer [life expectancies](#) and demographic changes. [Behavioral interventions](#) are a potential strategy to prevent or delay dementia in [asymptomatic individuals](#), but few randomized controlled trials have studied the effects of physical and mental activity together, according to the study background.

"We found that cognitive scores improved significantly over the course of 12 weeks, but there were no significant differences between the intervention and active control groups. These results may suggest that in this study population, the amount of activity is more important than the type of activity, because all groups participated in both mental activity and exercise for [60 minutes/per day, three days/per week] for 12 weeks. Alternatively, the cognitive improvements observed may be due to practice effects," the authors note.

The study by Deborah E. Barnes, Ph.D., M.P.H., of the University of California, San Francisco, and colleagues included 126 inactive,

community-dwelling [older adults](#) with cognitive complaints. All the individuals engaged in home-based mental activity (1 hour/per day, 3 days/per week) plus class-based physical activity (1 hour/per day, 3 days/per week) for 12 weeks and were assigned to either mental activity intervention (MA-I, intensive computer work); or mental activity control (MA-C, educational DVDs) plus exercise intervention (EX-I, aerobic) or exercise control (EX-C, stretching and toning). The study design meant there were four groups: MA-I/EX-I, MA-I/EX-C, MA-C/EX-I and MA-C/EX-C.

Global cognitive scores improved significantly over time but did not differ between groups in the comparison between MA-I and MA-C (ignoring exercise), the comparison between EX-I and EX-C (ignoring mental activity), or across all four randomization groups, according to the study results.

"The prevalence of cognitive impairment and dementia are projected to rise dramatically during the next 40 years, and strategies for maintaining cognitive function with age are critically needed. Physical or mental activity alone result in small, domain-specific improvements in cognitive function in older adults; combined interventions may have more global effects," the study concludes.

In an invited commentary, Nicola T. Lautenschlager, M.D., of the University of Melbourne, Australia, and Kay L. Cox, Ph.D., of the University of Western Australia, Perth, write: "Barnes and colleagues should be commended for reporting the results of the MAX trial in the international literature. Although the overall trial results were negative, there is a positive message and several points that can be learned from these findings."

"First, the authors have demonstrated that stimulating activity, either mental activity or exercise, can improve cognition in only 12 weeks,

even in older adults with cognitive complaints. Second, short-term interventions in well-controlled RCTs [[randomized controlled trials](#)] may not be long enough for the intervention to be effective," they continued.

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