Brain function boosted by daily physical activity in middle-aged, older adults

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A new study by researchers at University of California San Diego School of Medicine adds to the canon of research associating physical activity with cognitive performance, this time using 90 middle-aged and older

subjects who wore accelerometers while physically active and completed mobile cognitive testing from home.

"The future of lifestyle interventions really needs to be remote-based," said Raeanne Moore, Ph.D., associate professor in the Department of Psychiatry at UC San Diego School of Medicine and principal investigator of the study. "The pandemic has made this especially clear."

On the days their physical activity increased, the study found, the 50- to 74-year-old participants performed more effectively on an executive function task, and on the days when their physical activity decreased, so too did their cognitive performance.

The findings published Jan. 31, 2022 in the journal *JMIR mHealth and uHealth*.

"It was a very linear relationship," Moore said. "We hypothesized that we would find this, but we couldn't be sure because we weren't telling people to increase their physical activity. They just did what they do every day."

First author Zvinka Zlatar, Ph.D., a clinical psychologist at UC San Diego School of Medicine, added, "Future interventions, in which we ask people to increase their physical activity, will help us determine if daily changes in physical activity lead to daily gains in cognition measured remotely or vice versa."

The correlation between physical activity and cognition remained when adjustments were made for various co-morbidities, such as HIV status, age, sex, education and race/ethnicity. But it held only for persons who function dependently—who rely on others to perform the tasks of daily living, such as managing household activities or paying the bills.

"For them, physical activity may have a greater benefit on daily, real-world cognitive performance," Moore said, a finding consistent with research into Alzheimer's disease and related dementias.

Though it didn't fall within the purview of this study, Moore speculated that because functionally independent adults likely perform more cognitively stimulating and social activities, which are known to have positive impacts on brain health, physical activity may have less of an impact on cognition.

Moore and Zlatar said their work has implications for the development of novel digital health interventions to preserve brain health in aging.

"We don't know yet if there's a cumulative, long-term effect to these small daily fluctuations in cognition," Zlatar said. "That's something we plan to study next—to see if performing physical activity at different intensities over time, in unsupervised settings, can produce long-term improvements in brain health and sustained behavior change."

Provided by University of California - San Diego

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