

Good quality sleep and avoiding sleep apnea can boost brain power: Study

July 24 2023



Credit: Gary Barnes via Pexels

Good quality sleep and the absence of sleep apnea are associated with better cognitive function, a Monash-University-led international study has found.

Published in *JAMA Network Open*, the study investigated 5,946 adults in

the U.S. in five independent community-based cohorts involved in an overnight sleep study and neuropsychological assessments.

It found that [better sleep quality](#) and the absence of sleep apnea in adults aged 58–89 who had not experienced stroke or [dementia](#) were associated with better cognition over five years of follow-up.

Individual differences in the composition of sleep, such as the time spent in light sleep, [deep sleep](#), and REM sleep, were not associated with cognition.

"These findings suggest that in adults without dementia, sleep consolidation and the absence of sleep apnea may be particularly important for optimizing cognition with aging," the researchers wrote.

First author and Monash University Associate Professor Matthew Pase, from the Turner Institute for Brain and Mental Health, who presented the findings at the Alzheimer's Association International Conference in the Netherlands, said the study investigated which aspects of sleep patterns and respiratory-related sleep disturbances were associated with cognitive function in middle-aged to older adults.

Since participants in this community-based study did not present with any specific sleep complaints, the association between even mild obstructive sleep apnea and poorer cognition is an important observation.

Associate Professor Pase said the findings suggested that the role of interventions to improve sleep for maintaining cognitive function required investigation.

"At least half our sample had evidence of at least mild obstructive sleep apnea," he said.

"I think the most interesting finding is that participants that have mild to severe sleep apnea had worse cognition, so they had worse thinking and memory performance, for example.

"This is significant because there have been some studies that have shown relationships between obstructive sleep apnea and poor cognition, but they've genuinely relied on people with a diagnosis.

"The take home is that our findings suggest different elements of sleep are important for cognitive health, particularly the quality of someone's overnight sleep and whether or not they have sleep apnea."

Associate Professor Pase, who is also with the Monash School of Psychological Sciences, said good sleep was essential for health, yet associations between sleep and dementia risk remained "incompletely understood."

"Most research on sleep and cognition has used subjective reports of sleep or rest-activity patterns," he said.

"A major strength of the current study was the use of objective overnight sleep studies in such a large number of participants."

This study is the first to come from the Sleep and Dementia Consortium, which was established to study associations between risk of dementia and markers of accelerated brain aging and injury measured with brain imaging and cognitive testing.

It is led by Associate Professor Pase and Associate Professor Jayandra Himali from the University of Texas in San Antonio.

The consortium curated gold standard data from five population-based cohorts across the U.S. with methodologically consistent, overnight,

home-based sleep studies and neuropsychological assessments over five years of follow-up.

"This has allowed us to generate the best evidence yet as to which aspects of sleep are more important for cognitive health," Associate Professor Pase said.

The cohorts included the Atherosclerosis Risk in Communities study, Cardiovascular Health Study, Framingham Heart Study (FHS), Osteoporotic Fractures in Men Study, and Study of Osteoporotic Fractures.

Results were adjusted for demographic variables, the time between the sleep study and neuropsychological assessment (0–5 years), body mass index, antidepressant use, and sedative use.

One of the next steps is for the researchers to explore the aspects of sleep health most strongly related to dementia risk.

More information: Matthew P. Pase et al, Sleep Architecture, Obstructive Sleep Apnea, and Cognitive Function in Adults, *JAMA Network Open* (2023). DOI: [10.1001/jamanetworkopen.2023.25152](https://doi.org/10.1001/jamanetworkopen.2023.25152)

Provided by Monash University

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