

Improving deep sleep may prevent dementia, study finds

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As little as 1% reduction in deep sleep per year for people over 60 years of age translates into a 27% increased risk of dementia, according to a

study which suggests that enhancing or maintaining deep sleep, also known as slow wave sleep, in older years could stave off dementia.

The study, led by Associate Professor Matthew Pase, from the Monash School of Psychological Sciences and the Turner Institute for Brain and Mental Health in Melbourne, Australia, and [published](#) today in *JAMA Neurology*, looked at 346 participants, over 60 years of age, enrolled in the Framingham Heart Study who completed two overnight sleep studies in the time periods 1995 to 1998 and 2001 to 2003, with an average of five years between the two studies.

These participants were then carefully followed for dementia from the time of the second sleep study through to 2018. The researchers found, on average, that the amount of deep sleep declined between the two studies, indicating [slow wave sleep](#) loss with aging. Over the next 17 years of follow-up, there were 52 cases of dementia.

Even adjusting for age, sex, cohort, [genetic factors](#), smoking status, sleeping medication use, antidepressant use, and anxiolytic use, each percentage decrease in deep sleep each year was associated with a 27% increase in the risk of dementia.

"Slow-wave sleep, or [deep sleep](#), supports the aging brain in many ways, and we know that sleep augments the clearance of metabolic waste from the brain, including facilitating the clearance of proteins that aggregate in Alzheimer's disease," Associate Professor Pase said.

"However, to date we have been unsure of the role of slow-wave sleep in the development of dementia. Our findings suggest that slow wave sleep loss may be a modifiable dementia risk factor."

Associate Professor Pase said that the Framingham Heart Study is a unique community-based cohort with repeated overnight

polysomnographic (PSG) sleep studies and uninterrupted surveillance for incident dementia.

"We used these to examine how slow-wave sleep changed with aging and whether changes in slow-wave sleep percentage were associated with the risk of later-life dementia up to 17 years later," he said.

"We also examined whether genetic risk for Alzheimer's Disease or brain volumes suggestive of early neurodegeneration were associated with a reduction in [slow-wave sleep](#). We found that a genetic risk factor for Alzheimer's disease, but not brain volume, was associated with accelerated declines in slow wave sleep."

More information: Jayandra J. Himali et al, Association Between Slow-Wave Sleep Loss and Incident Dementia, *JAMA Neurology* (2023). DOI: [10.1001/jamaneurol.2023.3889](https://doi.org/10.1001/jamaneurol.2023.3889)

Provided by Monash University

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