

Fluctuating blood pressure: A warning sign for dementia and heart disease

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A new study by Australian researchers has shown that fluctuating blood pressure can increase the risk of dementia and vascular problems in older people.

Short [blood pressure](#) (BP) fluctuations within 24 hours as well as over several days or weeks are linked with impaired cognition, say University of South Australia (UniSA) researchers who led the study.

Higher systolic BP variations (the top number that measures the pressure in arteries when a heart beats) are also linked with stiffening of the arteries, associated with heart disease.

The [findings](#) have been published in the journal *Cerebral Circulation—Cognition and Behaviour*.

Lead author Daria Gutteridge, a Ph.D. candidate based in UniSA's Cognitive Aging and Impairment Neuroscience Laboratory (CAIN), says it's well known that [high blood pressure](#) is a risk factor for dementia, but little attention is paid to fluctuating blood pressure.

"Clinical treatments focus on hypertension, while ignoring the variability of blood pressure," Gutteridge says.

"Blood pressure can fluctuate across different time frames—short and long—and this appears to heighten the risk of dementia and blood vessel health."

To help explore the mechanisms that link BP fluctuations with dementia, UniSA researchers recruited 70 healthy [older adults](#) aged 60–80 years, with no signs of dementia or cognitive impairment.

Their blood pressure was monitored, they completed a cognitive test, and their arterial stiffness in the brain and arteries was measured using transcranial doppler sonography and pulse wave analysis.

"We found that higher blood pressure variability within a day, as well as across days, was linked with reduced cognitive performance. We also

found that higher blood pressure variations within the systolic BP were linked with higher blood vessel stiffness in the arteries.

"These results indicate that the different types of BP variability likely reflect different underlying biological mechanisms, and that systolic and diastolic blood pressure variation are both important for cognitive functioning in older adults."

The links were present in older adults without any clinically relevant cognitive impairment, meaning that BP variability could potentially serve as an early clinical marker or treatment target for [cognitive impairment](#), the researchers say.

More information: D.S. Gutteridge et al, Cross-sectional associations between short and mid-term blood pressure variability, cognition, and vascular stiffness in older adults, *Cerebral Circulation—Cognition and Behavior* (2023). [DOI: 10.1016/j.cccb.2023.100181](https://doi.org/10.1016/j.cccb.2023.100181)

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