

Sudden blood pressure drops associated with long-term dementia risk

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Orthostatic hypotension—low blood pressure when suddenly standing up—is associated with a 15 percent increase in a person's long-term risk of dementia, including Alzheimer's disease, according to a twenty-four year study of more than 6,000 people published this week in *PLOS Medicine* by Arfan Ikram and Frank Wolters from Erasmus Medical Center, the Netherlands, and colleagues.

Orthostatic hypotension, which can trigger head rushes or dizzy spells upon standing, is known to cause transient cerebral hypoperfusion, or brief episodes of reduced blood flow to the brain. Previous studies have also shown that reduced blood flow in the brain, in the elderly, can contribute over time to brain dysfunction, but hadn't specifically looked at hypoperfusion caused by orthostatic hypotension. Between 1990 and 1992, Ikram and colleagues evaluated 6204 men and women without [dementia](#) or history of stroke in the Dutch population-based Rotterdam Study, with a mean age of 68.5. Those with a drop of more than 20mmHg in their systolic [blood pressure](#) or 10 mmHg in their diastolic pressure within 3 minutes of standing from a resting position were classified as having orthostatic hypotension. Then, they followed the participants until 2014, tracking the occurrence of dementia.

After a mean follow-up time of 15.3 years, 1176 (19 percent) of the participants in the study developed dementia, including Alzheimer's disease, [vascular dementia](#), Parkinson's dementia, and other dementias. Orthostatic hypotension at baseline, which was present in 1152 participants (18.6 percent), was associated with a 15 percent relative

increase (95 percent confidence interval 1.00-1.34, $p=0.05$) in all dementia types. The association was even more pronounced for those who didn't have a compensatory increase in heart rate along with the momentary drop in blood pressure, with a 39 percent increase in long-term dementia risk (95 percent confidence interval 1.04-1.85, $p=0.03$). Variability in [systolic blood pressure](#) upon standing, even without meeting the formal criteria for orthostatic hypotension, was associated with an 8 percent increased risk of dementia (95 percent confidence interval 1.00-1.17, $p=0.02$). The study was limited to a mostly Caucasian population, so the associations may not hold true for other ethnicities.

Although this association between orthostatic hypotension and dementia does not necessarily represent a direct causal role, one possible explanation for the findings, the authors say, is that "brief episodes of hypoperfusion, elicited by sudden blood pressure drops, may lead to hypoxia [lack of oxygen] with detrimental effects on brain tissue."

More information: Frank J. Wolters et al, Orthostatic Hypotension and the Long-Term Risk of Dementia: A Population-Based Study, *PLOS Medicine* (2016). [DOI: 10.1371/journal.pmed.1002143](https://doi.org/10.1371/journal.pmed.1002143)

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