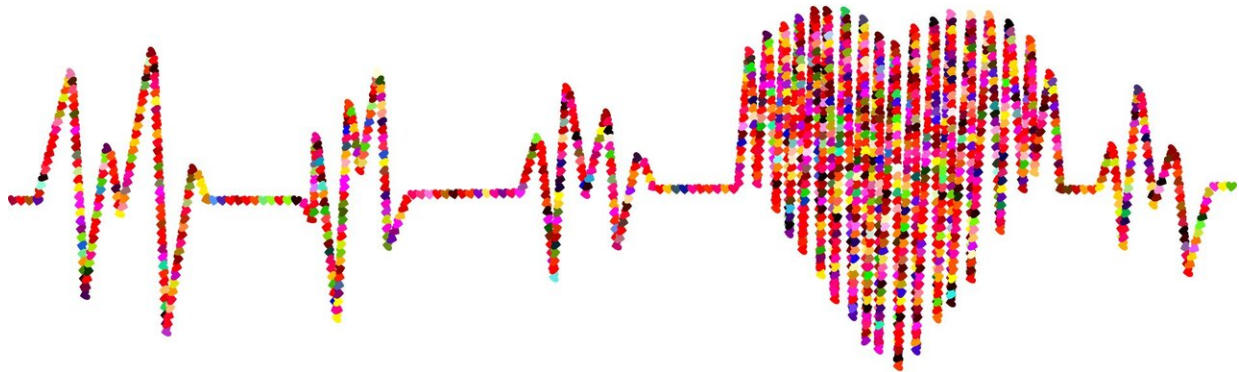


# Hypertension in young adulthood associated with cognitive decline in middle age

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High blood pressure, or hypertension, affects everything from your arteries to your kidneys, from eyesight to sexual function. Among older adults, high blood pressure is also associated with cognitive decline as a result of interrupted blood flow to the brain, as well as strokes, heart attacks and impaired mobility.

A new Northwestern University-Tel Aviv University study has revealed

that subjects who experienced relatively [high blood pressure](#) during young adulthood also experienced significant declines in cognitive function and gait in midlife (approximately 56 years old). The study cohort included about 200 young adults with an average age of 24 at the beginning of the study.

The research was led by Prof. Farzaneh A. Sorond and Dr. Simin Mahinrad of Northwestern University's Department of Neurology and Prof. Jeffrey Hausdorff of TAU's Sackler Faculty of Medicine, TAU's Sagol School of Neuroscience and Tel Aviv Medical Center's Center for the Study of Movement, Cognition, and Mobility at the Neurological Institute. The study was published in the American Heart Association's journal *Circulation* in March.

"We find that the deleterious effects of elevated [blood pressure](#) on brain structure and function begin in early adulthood. This demonstrates the need for preventive measures of high blood pressure even at this early age," explains Prof. Hausdorff. "We know that poor gait and cognitive function among [older adults](#) are associated with and predict multiple adverse health outcomes like [cognitive decline](#), dementia, falls and death. Our study shows that the time to treat high blood pressure and to minimize future changes in gait and cognition is much earlier—decades earlier—than previously thought."

In addition, the study suggests that gait impairment may be an earlier hallmark of hypertensive brain injury than cognitive deficits.

For the study, the researchers assessed the blood pressure, gait and cognition of 191 participants from the Coronary Artery Risk Development in Young Adults study, a community-based cohort of young individuals followed over 30 years. In the last year of follow-up, gait was assessed using an instrumented gait mat; cognitive function was evaluated using neuropsychological tests; and the level of white matter

intensity in the brain, a symptom of cardiovascular disease, was measured using MRIs. The impact of cumulative levels of high blood pressure was found to be independent of other vascular risk factors over the same 30-year period.

"Higher cumulative blood pressure was associated with slower walking speed, smaller step length and higher gait variability," Prof. Hausdorff says. "Higher cumulative blood pressure was also associated with lower cognitive performance in the executive, memory and global domains."

"Our takeaway is this: Even in [young adults](#), blood pressure has significant implications, even at levels below the 'hypertension' threshold, and is important to assess and modify for future cognitive function and mobility," Prof. Hausdorff concludes.

**More information:** Simin Mahinrad et al, Cumulative Blood Pressure Exposure During Young Adulthood and Mobility and Cognitive Function in Midlife, *Circulation* (2019). [DOI: 10.1161/CIRCULATIONAHA.119.042502](#)

Provided by Tel Aviv University

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