

Spikes in blood pressure among young adults spell trouble in mid-age

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Wide swings in blood pressure readings among young adults are associated with a higher risk of cardiovascular disease by middle age, a new analysis led by Duke Health researchers shows.

The finding, publishing Jan. 22 in *JAMA Cardiology*, suggests that the [current practice](#) of averaging [blood pressure readings](#) to determine whether medications are necessary could be masking a potential early warning sign from the fluctuations themselves.

"If a patient comes in with one reading in December and a significantly lower reading in January, the average might be within the range that would appear normal," said lead author Yuichiro Yano, M.D., Ph.D., assistant professor in Duke's Department of Family Medicine and Community Health.

"But is that difference associated with health outcomes in later life?" Yano said. "That's the question we sought to answer in this study, and it turns out the answer is yes."

Yano and colleagues arrived at their conclusion after analyzing 30 years of data from a large, diverse cohort of young people enrolled in the Coronary Artery Risk Development in Young Adults study between March 1985 and June 1986.

Of the 3,394 people studied, about 46% were African American and 56% were women. The patients had regular blood pressure checks, with patterns evaluated across five visits, including at two, five, seven and 10 years. At the 10-year mark, the average age of the patients was about 35.

The main reading of concern to Yano's research team was the systolic blood pressure level, the upper number in the equation that measures the pressure in the [blood vessels](#) when the heart pumps. A systolic blood pressure reading over 130 is considered hypertensive and has long been a major risk factor for cardiovascular disease.

Yano and colleagues were able to identify which young people had variations in systolic blood pressure by the age of 35 and then track them

over the next 20 years and see whether there appeared to be a correlating increase in cardiovascular disease.

Over those years, study participants reported 181 deaths and 162 cardiovascular events, which included fatal and nonfatal coronary heart disease, hospitalization for heart failure, stroke, transient ischemic attack, or a stent procedure for blocked arteries.

The researchers found that each 3.6-mm spike in systolic blood pressure during young adulthood was associated with a 15-percent higher risk for heart disease events, independent of the averaged blood pressure levels during young adulthood and any single [systolic blood pressure](#) measurement in midlife.

"Current guidelines defining hypertension and assessing the need for anti-hypertensive therapies ignore variability in blood pressure readings," Yano said. "I think there has been a belief that variability is a chance phenomenon, but this research indicates maybe not. Variability matters."

Yano said this study provides strong evidence that doctors and patients should be alert to [blood](#) pressure variations in early adulthood, when there is time to instill lifestyle changes that could improve and even extend a person's life.

More information: Yuichiro Yano et al. Association of Blood Pressure Patterns in Young Adulthood With Cardiovascular Disease and Mortality in Middle Age. *JAMA Cardiol*. Published online January 22, 2020. [DOI: 10.1001/jamacardio.2019.5682](https://doi.org/10.1001/jamacardio.2019.5682)

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