



the first time that women's blood vessels—including both large and small arteries—age at a faster rate than men's. The findings, published Wednesday in the journal *JAMA Cardiology*, could help to explain why women tend to develop different types of cardiovascular disease and with different timing than men.

"Many of us in medicine have long believed that [women](#) simply 'catch up' to men in terms of their cardiovascular risk," said Susan Cheng, MD, MPH, MMSc, senior author of the study and director of Public Health Research at the Smidt Heart Institute. "Our research not only confirms that women have different biology and physiology than their male counterparts, but also illustrates why it is that women may be more susceptible to developing certain types of cardiovascular disease and at different points in life."

Using community-based data amassed from multiple sites across the country, Cheng and her research team conducted sex-specific analyses of measured [blood pressure](#)—a critical indicator of cardiovascular risk. The data represented nearly 145,000 [blood](#) pressure measurements, collected serially over a 43-year period, from 32,833 study participants ranging in age from 5 to 98 years old.

Because a person's risk for developing a [heart attack](#), heart failure, or a stroke typically begins with having [high blood pressure](#), Cedars-Sinai researchers combed through their massive data looking for clues and patterns regarding how blood pressure starts to rise. Then, instead of comparing the data from men and women to each other, investigators compared women to women and men to men.

This approach allowed investigators to identify that the progression and evolution of women's vascular function is very different than for men. In fact, women showed signs of blood pressure elevation much earlier in life than men.

"Our data showed that rates of accelerating blood pressure elevation were significantly higher in women than men, starting earlier in life," said Cheng, the Erika J. Glazer Chair in Women's Cardiovascular Health, who also serves as director of Cardiovascular Population Sciences at the Barbra Streisand Women's Heart Center. "This means that if we define the hypertension threshold the exact same way, a 30-year old woman with high blood pressure is probably at higher risk for cardiovascular disease than a man with high blood pressure at the same age."

Christine Albert, MD, MPH, founding chair of the newly established Department of Cardiology at the Smidt Heart Institute, says this new research should help guide clinicians and researchers to think differently when it comes to treating and studying women and their cardiovascular health.

"Our women's [heart](#) health experts have a long history of advocating for adequate inclusion of women in research and the need to both recognize and study sex differences in cardiovascular physiology and disease," said Albert. "This study is yet another reminder to physicians that many aspects of our cardiovascular evaluation and therapy need to be tailored specifically for women. Results from studies performed in men may not be directly extrapolated to women."

Provided by Cedars-Sinai Medical Center

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