

# Thickening of heart's right ventricle could foreshadow heart failure and cardiovascular death in heart-healthy patients

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(Medical Xpress)—Researchers at the Perelman School of Medicine at the University of Pennsylvania report in a new study that thickening of the heart's right ventricle is associated with an increased risk of heart failure and cardiovascular death in patients without clinical cardiovascular disease at baseline. The study is published online ahead of print in the journal [Circulation](#).

"In most studies of the heart, researchers have focused on the more-easily-imaged [left ventricle](#), the region of the heart affected by systemic high blood pressure and other common conditions," said study author Steven Kawut, M.D., M.S., associate professor of Medicine and Epidemiology and director of the Pulmonary Vascular Disease Program at Penn. "But we know from the results of this study and [previous work](#) that focusing attention on the [right ventricle](#) (RV) is critical in our understanding of many conditions of the heart and lungs. This research revealed that approximately one in 10 [heart failure](#) events and cardiovascular deaths may be attributed to thickening of the RV in adults without clinical cardiovascular disease at baseline."

The researchers examined [cardiac magnetic resonance](#) (CMR) images of the right ventricles of 4,144 men and women, average age 61, participating in the Multi-[Ethnic Study](#) of Atherosclerosis (MESA). The MESA is a multicenter research project tracking the development of cardiovascular disease in 6,814 Caucasians, African-Americans,

Hispanics and Chinese-Americans who did not have clinically-diagnosed heart disease at the beginning of the study.

Participants with RV hypertrophy (or abnormal thickening of the RV) had double the risk of heart failure or death compared to those with normal RV size. This association persisted after adjustment for age, sex, race/ethnicity, [body mass index](#), education, smoking status, and other clinical indicators. This relationship was strongest in those with average or lower left ventricular mass.

"These findings run counter to the traditional belief that for otherwise-healthy adults, the RV plays a limited role in clinical heart failure," said Kawut, who is also a member of the Penn Cardiovascular Institute. "The strong association our study found warrants further studies of the role of the RV in contributing to the risk of adverse outcomes. The MESA has repeated CMR images in these same participants ten years later, so our next goals are to understand the changes in the RV over time and how this tracks with how adults feel, function, and survive."

**More information:** [doi: 10.1161/CIRCULATIONAHA.112.092544](https://doi.org/10.1161/CIRCULATIONAHA.112.092544)

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