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Right Heart Vortex Entrainment Volume and Right Ventricular Diastolic Dysfunction JAMES BROWNING, JEAN HERTZBERG, University of Colorado Boulder, BRETT FENSTER, JOYCE SCHROEDER, National Jewish Health and University of Colorado Denver — Recent advances in cardiac magnetic resonance imaging (CMR) have allowed for the 3-dimensional characterization of blood flow in the right ventricle (RV) and right atrium (RA). In this study, we investigate and quantify differences in the characteristics of coherent rotating flow structures (vortices) in the RA and RV between subjects with right ventricular diastolic dysfunction (RVDD) and normal controls. Fifteen RVDD subjects and 10 age-matched controls underwent same day 3D time resolved CMR and echocardiography. Echocardiography was used to determine RVDD stage as well as pulmonary artery systolic pressure (PASP). CMR data was used for RA and RV vortex quantification and visualization during early and late ventricular diastole. RA and RV vortex entrainment volume is quantified and visualized using the Lambda-2 criterion, and the results are compared between healthy subjects and those with RVDD. The resulting trends are discussed and hypotheses are presented regarding differences in vortex characteristics between healthy and RVDD subjects cohorts.

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