

# Myocardial Injury and Cardiac Reserve Limitation in Heart Failure with Preserved Ejection Fraction

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## SUPPLEMENTAL MATERIAL

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**Supplemental Table 1: Correlations between Proportional Changes in Hemodynamics and Troponin T during Exercise**

	<b>r coefficient</b>	<b>P value</b>
Change in Right atrial pressure (%)	0.31	0.02
Change in PCWP (%)	0.36	0.006
Change in systolic $PTI_C$ (%)	0.33	0.02
Change in coronary $PTI_C$ (%)	-0.06	0.6
Change in coronary $PTI_C$ /systolic $PTI_C$ (%)	-0.31	0.02

PCWP, pulmonary capillary wedge pressure,  $PTI_C$ , corrected pressure-time integral. See text for details.

**Supplemental Table 2: Correlation of Baseline Troponin T with LV diastolic and systolic reserve during exercise**

	<b>r coefficient</b>	<b>P value</b>
<b>Exercise</b>		
Mitral annular e' velocity (cm/s)	-0.51	0.0006
Mitral annular s' velocity (cm/s)	-0.40	0.01
$\Delta$ Mitral annular e' velocity (cm/s)	-0.47	0.003
$\Delta$ Mitral annular s' velocity (cm/s)	-0.53	0.0007

Supplemental Table 3: Sensitivity Analysis Stratifying HFpEF Patients Based on the Presence of Coronary Disease

	<i>Rest</i>		<i>20W</i>		<i>Peak</i>	
	Non CAD-HFpEF (n=23)	CAD-HFpEF (n=15)	Non CAD-HFpEF (n=23)	CAD-HFpEF (n=15)	Non CAD-HFpEF (n=23)	CAD-HFpEF (n=15)
<b>Hemodynamics</b>						
PCWP (mmHg)	17±5	19±7	31±5	33±5	34±7	35±5
<b>Myocardial Oxygen Supply &amp; Demand</b>						
Rate pressure product (mmHg·min <sup>-1</sup> )	10346±2736	9509±2018	16822±5204	14085±3716	19787±5957	16030±4229*
Systolic PTI <sub>C</sub> (mmHg·sec·min <sup>-1</sup> ·kg·m <sup>-2</sup> )	238±77	257±55	311±109	327±71	342±127	347±79
Coronary PTI <sub>C</sub> (mmHg·sec·min <sup>-1</sup> ·L·dL <sup>-1</sup> )	41±8	41±15	30±6	31±12	28±6	29±10
Coronary PTI <sub>C</sub> /systolic PTI <sub>C</sub>	0.18±0.04	0.17±0.07	0.10±0.03	0.10±0.05	0.09±0.03	0.09±0.04
<b>Ventricular function</b>						
Mitral annular e' velocity (cm/s)	8±2	6±2 <sup>†</sup>	8±2	6±2 <sup>†</sup>	9±3	6±1 <sup>‡</sup>
Mitral annular s' velocity (cm/s)	7±2	5±1 <sup>†</sup>	8±2	6±2*	9±2	6±2 <sup>†</sup>
<b>Cardiomyocyte Injury</b>						
<i>hs troponin T</i> (ng/L)	8.7 (9.0,19.8)	22.0 (11.7,29.4) <sup>†</sup>	10.5 (6.3,21.4)	23.6 (12.9,32.1) <sup>†</sup>	10.7 (7.1,21.7)	19.0 (13.0,33.5) <sup>‡</sup>

\*p<0.05, <sup>†</sup>p<0.01, and <sup>‡</sup>p<0.001 vs. Non CAD-HFpEF. CAD indicates coronary artery disease; HFpEF, heart failure with preserved ejection fraction; and other abbreviations as in Supplemental Table 1