

## D-RIBOSE IMPROVES DOPPLER TEI MYOCARDIAL PERFORMANCE INDEX AND MAXIMAL EXERCISE CAPACITY IN STAGE C HEART FAILURE

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**INTRODUCTION:** A reduced energy reserve persists in the failing human heart and is associated with altered myocardial function. D-Ribose (R) increases myocardial high-energy phosphates and improves myocardial function following ischemia. In a randomized, placebo-controlled (P), 8-week cross-over study, 15 subjects with ischemic cardiomyopathy (LVEF:  $30.1 \pm 1.6$ ) were enrolled to determine the effects of R on Doppler Tei Myocardial Performance Index (MPI), maximal exercise capacity ( $VO_2\max$ ) and ventilatory efficiency (RCP,  $VE/VCO_2@AT$ ), powerful predictors of heart failure survival in heart failure.

**METHODS:** Subjects underwent 2-D and Doppler echo study and maximal cycle ergometry with gas exchange monitoring at baseline and at 8 weeks. R or P (5 grams TID) was added to standard heart failure regimens.

**RESULTS:** R significantly improved Doppler Tei MPI and maintained  $VO_2\max$ , while improving RCP,  $VE/VCO_2@AT$ .

Therapy	Doppler MPI	$VO_2\max$ (% $\Delta$ )	RCP, $VE/VCO_2@AT$ (% $\Delta$ )
R	$-0.13 \pm 0.13$ ( $p=0.02$ v. P)	$-1.4 \pm 8.5$ ( $p=0.02$ v. P)	$5.8 \pm 9.8$ ( $p=0.08$ v. P)
PI	$-0.01 \pm 0.09$	$-7.8 \pm 7.3$	$-1.4 \pm 8.5$

**CONCLUSION:** R produced improvements in Doppler Tei MPI and ventilation efficiency, while maintaining maximal exercise capacity versus P in Stage C heart failure subjects. R may reflect a therapeutic advantage for advanced heart failure patients.

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