

**Carter O, D MacCarter, S Mannebach, J Biskupiak, G Stoddard, EM Gilbert, MA Munger. D-Ribose improves peak exercise capacity and ventilatory efficiency in heart failure patients. *JACC* 2005;45(3 Suppl A):185A.**

**Background:** Many clinicians and scientists concur that the failing heart in energy starved. D-Ribose (R), a naturally occurring monosaccharide, has been shown to increase myocardial high-energy phosphates and improve myocardial function following ischemia. This study was designed to determine whether R could improve maximal exercise capacity and ventilatory efficiency, a powerful independent predictor of heart failure patients (NYHA, II-III) with LV dysfunction.

**Methods:** Fourteen CHF patients, ischemic etiology (LVEF mean±SD: 32.4±8.1), were randomized in a double-blind, placebo-controlled (PL), single center, 8 week cross-over study. Each patient underwent maximal cycle ergometry with gas exchange monitoring, quality of life (QOL, DAS1 questionnaire), and BNP levels at baseline and at the end of each 8-week cross-over phase. Ventilatory efficiency was assessed using the linear VE to VC02 slope. R or PL was administered, 5 grams TID, in addition to existing heart failure medications. **Results:** R significantly maintained VO2max vs. PL, while improving the VE/VC02 relationship at the anaerobic threshold (VE/VC02@AT), and the respiratory compensation point (RCP). (Table) There was no significant differences, however, strong trends were noted in QOL and BNP levels.

	<u>VO2max (%change)</u> <u>[mean±SD]</u>	<u>VE/VC02@AT</u> <u>(%Change)</u> <u>[mean±SD]</u>	<u>RCP (%Change)</u> <u>[mean±SD]</u>
R	-1.4±8.5 (p=0.02 vs. PL)	4.9±6.4 (p=0.08 vs. PL)	5.8±9.8 (p=0.03 vs. PL)
PL	-7.8±7.3	-6.9±9.1	-1.4±8.5

**Conclusion:** D-ribose offers a metabolic advantage for the maintenance of maximal exercise capacity while improving ventilation efficiency, a strong predictor of heart failure survival, in congestive heart failure patients.