

Peak=peak exercise, VO<sub>2</sub>/HR= oxygen pulse, VD/VT=dead space/total volume ratio.

Variables	Time	HO group	LO group	CO group
Peak VO <sub>2</sub> -mL/kg/min	Before	18.2 ± 0.5	15.9 ± 1.2	18.0 ± 1.0
	After	21.8 ± 1.4*	20.4 ± 1.2**	18.6 ± 1.4
PeakVO <sub>2</sub> /HR-mL/beat	Before	8.8 ± 0.6	8.8 ± 1.1	9.9 ± 0.9
	After	9.9 ± 0.6	11.1 ± 1.3*	10.4 ± 1.2
Peak VE/VO <sub>2</sub>	Before	56.2 ± 7.1	56.2 ± 7.1	56.8 ± 4.7
	After	50.5 ± 3.3	43.9 ± 2.8*	51.1 ± 5.1
Peak VE/VC0 <sub>2</sub>	Before	45.4 ± 2.8	49.4 ± 4.0	50.9 ± 3.4
	After	43.5 ± 2.6	40.2 ± 2.0*	45.7 ± 3.9
Peak VD/VT	Before	0.28 ± 0.02	0.28 ± 0.02	0.26 ± 0.02
	After	0.24 ± 0.01	0.23 ± 0.01**	0.25 ± 0.02
6 min test-meters	Before	470 ± 20	503 ± 24	503 ± 23
	After	570 ± 18**	557 ± 22**	512 ± 16
Rest BNP-pg/mL	Before	491 ± 146	451 ± 112	494 ± 91
	After	315 ± 123	176 ± 37*	338 ± 105
Peak BNP-pg/mL	Before	525 ± 135	599 ± 122	643 ± 110
	After	327 ± 110	255 ± 50*	406 ± 116
QLS-Minnesota	Before	41.3 ± 8.8	43.7 ± 7.9	38.3 ± 8.3
	After	26.2 ± 8.9	24.8 ± 7.4**	36.5 ± 6.8

### 1136-72 Quality of Life and Depression in Congestive Heart Failure: Do Race and Gender Matter?

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**Background:** The impact of race & gender on depression and quality of life (QOL) in congestive heart failure (CHF) patients is unknown.

**Methods:** The prevalence of depression was evaluated in 153 CHF outpatients using Beck Depression Inventory (BDI), with depression defined as a score ≥ 10. QOL was measured by Minnesota Living with Heart Failure (MLWHF) and Medical Outcome Study Short Form (SF36).

**Results:** Women were more likely to score as depressed (64% v. 45% for men, p<0.05). Only 37% of black men scored as depressed, as compared to 70% of black women, 56% of white men, & 54% of white women (p=0.03). Although there was no indication of differences in severity of disease (as measured by ejection fraction and NYHA class) among these groups, black men scored themselves as having the best level of physical & social functioning (by SF36) & the lowest degree of impairment (by MLWHF). Age did not explain differences in depression rate. Indeed, depressed patients tended to be younger. BDI correlated with MLWHF & all components of the SF36 (p<0.001).

**Conclusion:** Depression is common in CHF outpatients & is strongly correlated with QOL. Black men have a markedly lower prevalence of depression & higher QOL scores as compared to white men, white women, and black women. Women score as being more depressed & having lower QOL as compared to men. Whether differences in subgroups reflect varying severity of disease or varying psychological response to impaired functioning needs further investigation.

#	A	Ejection Fraction	Percent Depressed	B ML Physical Social	ML WH Functional Functioning	Physical Functional (SF36)	Social Functioning (SF36)
Black Men	68	62	37%	1	35	51	69
White Men	52	62	56%	1	38	41	65
White Women	13	5	54%	1	39	35	52
Black Women	20	6	70%	1	56	27	53
P Value	<.001	0.06	0.03	0.0	0.0	0.002	0.12

### 1136-73 Effect of Endovascular Cooling on Hemodynamics and Metabolism in Pacing Induced Congestive Heart Failure

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**Background:** Mild hypothermia provides myocardial cell protection against ischemic injury in vivo, and increases contractility in excised hearts. Little is known, however, about the hemodynamic responses to mild hypothermia induced by endovascular cooling (EC) in heart failure. We assessed the effects of EC on hemodynamics, myocardial and whole-body oxygen consumption in pigs with rapid-pacing induced heart failure.

**Methods:** We paced the right ventricle (185-235 bpm) for 2-3 weeks in pigs (69±7 kg), (n=8). We then measured heart rate, mean arterial blood pressure, cardiac output (aortic flow probe), stroke volume, left ventricular end diastolic pressure, systemic vascular resistance, and myocardial blood flow (LAD flow probe) continuously under isoflurane anesthesia. Oxygen saturation was measured in the carotid artery, coronary sinus, and right atrium to derive myocardial (MVO<sub>2</sub>) and whole-body (VO<sub>2</sub>) oxygen consumption.

EC was induced using a heat-exchange catheter inserted into the inferior vena cava (Radiant Medical, Inc) to a core temperature of 32°C.

**Results:** EC significantly reduced LVEDP, myocardial and whole-body oxygen consumption, while maintaining cardiac output (table).

**Conclusions:** These results suggest that EC may provide hemodynamic improvement, while inducing a hypometabolic state. This therapeutic strategy may provide protection for the heart and peripheral organs in decompensated conditions such as congestive heart failure and cardiogenic shock.

#### Hemodynamic Responses at 32 °C

	LVEDP	MVO <sub>2</sub>	VO <sub>2</sub>	BP	HR	CO	SV	SVR
% of Baseline	60	44	45	83	81	75	95	93
p	.02	.001	.001	.03	.08	.14	.83	.44

### 1136-74 Improvement of Quality of Life in Patients With Severe Heart Failure Submitted to Myocardial Transplantation of Autologous Bone Marrow Mononuclear Cells

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**Background:** We've reported a pilot study of autologous bone marrow mononuclear cells transplantation (ABMMCT) to areas of ischemic myocardial (Eur J Nuc Med (29):226A;2002). Assessment of quality of life (QOL) impact is an important end point in the evaluation of patients with severe heart failure. **Methods:** Prospective assessment of QOL before and 8 weeks after ABMMCT guided by NOGA system, targets hibernating myocardium in severe heart failure patients, using Minnesota Living with Heart Failure Questionnaire and the Medical Outcomes Study Short Form-36(SF-36). The cardiac evaluation included Canadian cardiovascular society class, BNP measurement, exercise time on treadmill test (ETTT) and ejection fraction by Simpson on echocardiography. **Results:** Seven male and 2 female with mean age of 58.8 ± 11 years. The change in parameters between before and 8 weeks after procedure were: BNP varied from 360 ± 118 to 234 ± 127pg/mL; ejection fraction from 30.5 ± 6.3% to 35.4 ± 7.2%; Canadian cardiovascular society class from 3 ± 0.9 to 1.4 ± 0.9 and an increase of 1.6min (from 7.4 ± 2.67 to 9.0 ± 1.02) on ETTT. According to these objective data we observed a QOL improvement, based on the scores of Minnesota varying from 29.5 ± 31% to 42.7 ± 32% (p = 0.015) and on SF-36 with an increase shown in all of the 8 dimensions: Physical Functioning from 44.9 ± 22% to 62.2 ± 23% (p = 0.004); Role Limitations due to Physical problems from 41.6 ± 6% to 77.7 ± 13% (p = 0.009); Bodily Pain from 74.44 ± 20% to 84.44 ± 6% (p = ns); General Health from 65.54 ± 22% to 69.44 ± 18% (p = 0.017); Vitality from 51.11 ± 14% to 76.65 ± 8% (p = 0.04) Social Functioning from 63.88 ± 4% to 74.99 ± 4% (p = ns); Role Limitations due to Emotional problems from 66.66 ± 22% to 99.99 ± 28% (p = 0.01) and Mental Health from 55.1 ± 15% to 64.44 ± 11% (p = 0.005).

**Conclusion:** These data suggest that the ABMMCT can improve QOL of patients with severe heart failure. Prospective studies with a greater number of patients will be necessary to confirm these initial data.

### 1136-75 Impact of Left Ventricular Filling Properties on the Benefit of Exercise Training in Patients With Advanced Chronic Heart Failure

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**Background:** Prior studies of exercise training in heart failure patients have reported an increase in early diastolic filling which has been interpreted as an improvement in left ventricular relaxation. However, such an increase could also reflect a rise in left filling pressure. We sought to determine 1) whether there is indeed an improvement in ventricular relaxation parameters following exercise training; 2) whether ventricular filling properties at baseline can predict the hemodynamic benefit of an exercise training program in advanced chronic heart failure (CHF) patients.

**Methods:** We examined 29 patients with CHF and ejection fraction of ≤ 35% before and after an 18-week exercise program. Left ventricular filling was assessed using Doppler (E wave deceleration time, E/A ratio) and color M-Mode Doppler echocardiography (flow propagation velocity Vp; dimensionless index E/Vp, which reflects left atrial filling pressure). Stroke volume index (SVI), and systemic vascular resistance (SVR) were determined at rest and during exercise using thoracic electrical bioimpedance.

**Results:** Exercise time on a modified Bruce protocol increased from 6.2 ± 4 to 10 ± 3.2 min (p < 0.001). There was no significant change in E/A ratio, E wave deceleration time (170 ± 66 ms vs 169 ± 57 ms), Vp (36 ± 7 vs 35 ± 10), or E/Vp (2.3 ± 0.9 vs 2.4 ± 0.9). Only in patients with a nonrestrictive filling pattern was there a significant (p < 0.05) decrease in exercise SVR (828 ± 146 vs 702 ± 96 dynes/cm<sup>2</sup>), and a significant increase in exercise SVI (41 ± 9 vs 50 ± 11). These patients had a lower E/Vp than those with a restrictive filling pattern (1.85 ± 0.7 vs 2.7 ± 0.9) and a higher use of beta blockers (92% vs 43%, p < 0.05). Multi-regression analysis demonstrated that nonrestrictive filling pattern was the single independent predictor of hemodynamic improvement following exercise training (p < 0.05).

**Conclusion:** While exercise training does not seem to improve left ventricular filling properties in CHF patients, filling properties determine the benefit attainable from such training. A nonrestrictive filling pattern, reflecting preserved operating compliance, may be a prerequisite to improve exercise hemodynamics following training.