LIFELONG EXERCISE TRAINING DEMONSTRATES A DOSE DEPENDENT EFFECT ON MRI DERIVED LEFT VENTRICULAR MASS: IMPLICATIONS FOR DEFINING POPULATION NORMS AND LEFT VENTRICULAR HYPERTROPHY

ACC Poster Contributions
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Background: Left ventricular (LV) mass peaks early in life and diminishes with age; this observation has important implications for defining population norms. We sought to assess how varying levels of lifelong exercise training may modulate this response.

Methods: Healthy subjects (n=121; 77 M, 44 F) were screened based on exercise history. Sedentary subjects (n=59) were recruited from the Dallas Heart Study, a multiethnic probability-based sample of Dallas County residents. Lifelong exercisers (n=62) were recruited primarily from the Aerobics Center Longitudinal Study, a cohort which has prospectively documented lifelong exercise training patterns in subjects for 25 years. Subjects were stratified into 3 ‘sedentary’ groups and 3 ‘lifelong training’ groups: Sedentary Age 25-34 (n=8), Age 35-54 (n=26), and Age 65+ (n=25); Lifelong Training Age 65+ 2-3 sessions/wk (n=14), Age 65+ 4-5/wk (n=23) and Age 65+ 6-7/wk (n=25). All subjects underwent ECG gated cine cardiac MR imaging using a 1.5T magnet. LV mass was determined by the method of discs and indexed to body mass.

Results: Figure 1 presents LV Mass Index by group (mean ± S.D.). Group mean peak VO2 ± S.D. in mL/kg/min is also reported.

Conclusions: LV Mass Index decreases with sedentary aging; however, lifelong exercise training profoundly modulates this response. Lifelong exercisers over the age of 65 have LV mass indices similar to or greater than sedentary 25-34 year olds, an observation with important implications for defining population norms and LVH.