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Thesis Title	Alterations in Myocardial Stiffness in strength trained Athletes assessed by a new tissue Doppler Index			
Year	2013			
Abstract	<p><u>Abstract</u></p> <p><u>Background</u> In elite athletes left ventricular morphologic changes are predicted to alter passive pressure/volume characteristics by reducing myocardial stiffness and increasing compliance.</p> <p><u>Aim of the study</u> We investigated the utility of <u>a new Doppler tissue index</u> based on the pressure volume relation $\{(E/Ea)/LVEDD\}$, which provides a measure of myocardial stiffness, and assessed its usefulness in detecting cardiac adaptation in bodybuilders.</p> <p><u>Methods</u> Forty- five local bodybuilders (mean age 25.5 ± 6.1 years,) who had trained intensively for 7-10 hours per week for more than 2 years and a control group of 30 sedentary but otherwise normal subjects (mean age 28.1 ± 5.7 years,) were enrolled into the study. The groups were similar in age and gender. Left ventricular (LV) septal and posterior wall thickness, mass, chamber size, transmitral Doppler peak early (E) and late (A) diastolic filling velocities and isovolumic relaxation times were measured. Early diastolic myocardial velocities (Ea) were measured from lateral mitral annulus; Diastolic stiffness was assessed with the use of three indices E, Ea, and the left ventricular end diastolic diameter in diastole (LVEDD). The ratio, $[(E/Ea)/LVEDD]$, represents a pressure/volume relationship and provides a novel index of diastolic stiffness. Body builders were further divided into 2 groups based on the presence or absence of left ventricular hypertrophy (LVH), $\leq 12\text{mm}$ and $> 12\text{mm}$.</p>			