

[Echocardiographic evaluation of cardiac structure and function in obese Egyptian adolescents.](#)

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Source

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Abstract

OBJECTIVE: The objective of this study was to detect structural and functional changes in the left and right ventricles in obese Egyptian adolescents. **Methods and results** Anthropometric and echocardiographic parameters, including tissue Doppler imaging, were obtained from 70 obese adolescents with average body mass index of 34 plus or minus 3.8 and compared with 50 age- and sex-matched controls, with a body mass index of 21.6 plus or minus 1.9. Cardiac dimensions, stroke volume, left ventricular and right ventricular systolic and diastolic functions were evaluated. The obese group had a higher end-diastolic septal and posterior wall thickness and left ventricular mass index than the non-obese group. Body mass index, mid-arm and hip circumference values showed significant correlations with these echocardiographic variables. Systolic and diastolic functions of the left ventricle were normal in both groups, although stroke volume was high in the obese group. The right ventricle tissue Doppler parameters were similar in both groups. However, the S wave of the septal/lateral tricuspid valve annulus was reduced in the obese group, but not to the level reflecting systolic dysfunction. This was inversely correlated with hip, waist, and mid-arm circumference. Stepwise multiple regression analysis showed that the mid-arm and hip circumference followed by the body mass index are significant predictors of these early cardiac abnormalities. **Conclusion** Left ventricular hypertrophy is present in obese children, although both systolic and diastolic functions are normal. Tissue Doppler imaging revealed a minor, but still



significant, reduction in the right ventricular systolic function. Mid-arm and hip circumference are predictors of left ventricular hypertrophy.

- 1- [World J Emerg Surg.](#) 2011 Nov 16;6(1):39.