

## Study Shows Weight Loss Improves Ventricular Structure

Weight loss by morbidly obese patients may promote improvements in left ventricular structure independent of the other benefits of weight reduction, results of a controlled trial show [1].

In the study, patients with morbid obesity who lost weight after bariatric surgery had improved measures of left ventricular structure, independent of changes in blood pressure and other obesity-related comorbidities, including obstructive sleep apnea. Both the postsurgery patients, as well as control patients who lost weight without surgery, showed improvements in right ventricular end-diastolic area and right ventricular systolic pressure. The study is published in the February 16, 2010 issue of the *American Journal of Cardiology*. It is the first controlled study with long-term follow-up to evaluate the connection between weight loss and left ventricular function in morbidly obese patients independent of improvements in blood pressure, obstructive sleep apnea, and other obesity-related comorbidities.

The authors point out that controlling for obstructive sleep apnea is especially important in light of recent evidence that sleep apnea is associated with impairment of both right and left ventricular function [2].

### Evidence Builds for Benefits of Weight Loss on Heart Structure, Function

The results come on the heels of an MRI study showing that significant weight loss, by either diet changes alone or bariatric surgery can improve cardiac hypertrophy and diastolic function and reduce aortic stiffness in severely obese patients [3].

The study evaluated 57 patients with morbid obesity (BMI >40 kg/m<sup>2</sup> or >35 kg/m<sup>2</sup> with comorbidities) who lost weight after bariatric surgery and underwent echocardiography before and after surgery. Their echo results were compared with 57 control patients who had not undergone surgery. The two groups were frequency-matched for BMI, gender, age, and follow-up duration. The surgery patients started with an average BMI of 49 and ended with an average of 35 (p<0.0001). The controls' BMI went from 48.3 to 47.1 (p<0.0001 for the difference in BMI loss between the two groups). After a mean follow-up of 3.6 years, both absolute left ventricular mass and left ventricular mass indexed by height decreased in the surgery patients who had undergone bariatric surgery and lost weight, while both of these measures increased in the control group, and the differences between the groups remained significant after adjustment for potential confounders. However, neither group showed a significant change in ejection fraction, left ventricular myocardial performance index, or right ventricular myocardial performance index.

### References

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- 3-Rider OJ, Francis JM, Ali MK, et al. Beneficial cardiovascular effects of bariatric surgical and dietary weight loss in obesity. *J Am Coll Cardiol* 2009; 54:718-726