Title: Adolescent Cardiovascular Fitness Changes One Year Post Gastric-Band Surgery

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Purpose: The purpose of this study was to describe cardiovascular fitness changes one year post Gastric-Band surgery in severely obese adolescents. Methods: A retrospective chart review was conducted of patients who had Gastric-Band surgery and maximal fitness testing pre and 1 year post-surgery. Maximal cycle ergometer fitness was assessed using a 20 watt ramp protocol. Fitness measurements were absolute VO$_2$ (L/min), relative VO$_2$ (ml/kg/min), relative VO$_2$ fat free mass (FFM) and maximal work (watts). Results: There were 21 patients, aged 14-18 (mean 15.8±1.0), 16 females, 15 Caucasians. Average weight loss was 22.05±13.83 kg (range -4.6-49.5kg) and percent excess weight loss was 31.02%±19.08% (range -8.87-75.37). Weight and BMI significantly decreased one year post-surgery. Resting HR, max HR and max blood pressure, trended towards a significant decrease and relative VO$_2$ trended towards a significant increase. Maximum absolute VO$_2$ (baseline 2.84, 1 year post 2.80, p=0.697), relative VO$_2$ FFM (baseline 42.54, 1 year post 46.60, p=0.658), Watts (baseline 163, 1 year post 167, p=0.318), and respiratory exchange ratio were not significantly different.

Conclusion: Gastric-band surgery is effective in decreasing weight in adolescent patients. Despite significant weight loss there was not a corresponding significant improvement in cardiovascular fitness. Further research is needed to determine the most effective dose and intensity of exercise in this specific population.

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