

Inspiratory muscle strength and height as predictors for one year post bariatric cardiorespiratory fitness

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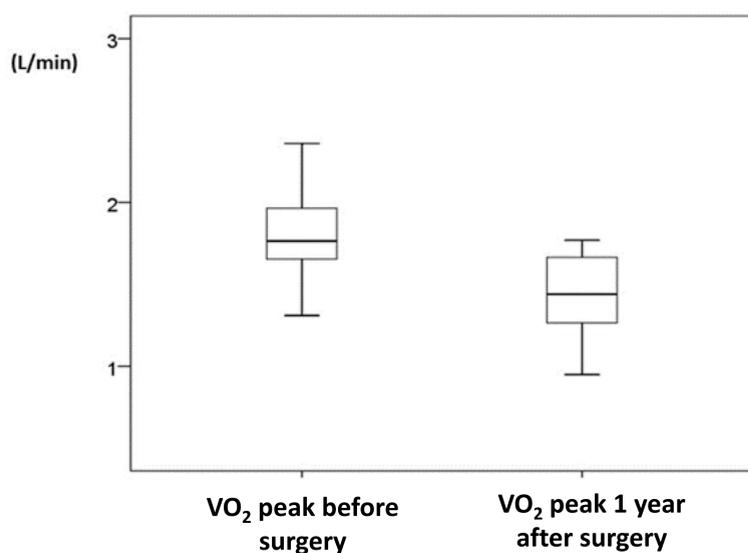
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Introduction: After bariatric surgery it has been published that there is a loss in cardiorespiratory fitness (CRF), associated with a loss in muscle mass. To avoid this deleterious effect, it is advisable to train the patients to improve CRF after the surgery. However, until now there is no information regarding the presurgical predictors associated with the CRF one year after sleeve gastrectomy (SG)¹⁻⁵.

Results: The preoperative CRF of patients was VO_2 peak of 1.82 ± 0.27 L/min. One year after the surgery VO_2 peak was 1.44 ± 0.26 L/min ($p=0.002$), BMI was 25.1 ± 1.5 kg/m² ($p=0.002$). Preoperative assessment of height (1.59 ± 0.04 m) and inspiratory muscle strength (84.7 ± 18.1 cm H₂O) had strong predictive power over CRF one year after the surgery with Spearman Rho of 0.749 ($p=0.005$) and 0.725 ($p=0.008$) respectively.

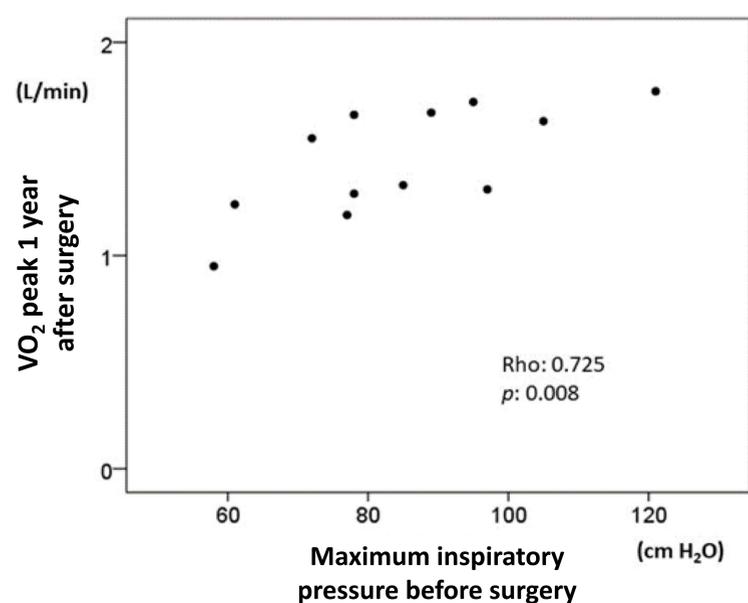
Changes in CRF one year after SG



Methods: Twelve female patients (38.6 ± 11.8 years old, BMI 35.3 ± 3.4 kg/m²) were evaluated about their physical fitness before and one year after SG. CRF was assessed with an incremental test in cycle-ergometer (workload increasing 20W/2min) until stopping criteria ($RER > 1.1$, Borg Rating of Perceived Exertion $\geq 7/10$) and breath by breath expired gas analysis (Cortex Metalizer 3B). Inspiratory muscle strength was assessed with Powerbreath K5 (Powerbreath), and height and weight were measured with a scale (Detecto). Statistical analysis was conducted with SPSS 22.0 software, paired comparison was conducted with Wilcoxon test and for correlation Spearman's test was applied. P value < 0.05 was considered significant.

Discussion: Even there is no doubt about the effectivity of SG upon the weight management in obese patients, there is no consensus regarding the physical training that should be the best approach for those patients. Preoperative assessment of VO_2 peak, height and inspiratory muscle strength could be used to create a personalized training program for patients with a predicted low CRF one year after the surgery.

Conclusions: Preoperative assessment of height and inspiratory muscle strength showed to be good predictors for CRF one year after SG.



References

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