

# A 4-Year Effects of Body Weight Reduction on Arterial Function after Bariatric Surgery in Morbidly Obese Patients

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## Objective:

To determine the long-term effect of weight loss on arterial function parameters in morbidly obese patients who underwent laparoscopic adjustable gastric banding (LAGB).

## Subjects:

Forty-eight Caucasian subjects mean age 47.38±10.77 years and 32 (66.67%) were female with morbid obesity who underwent LAGB and completed 4 years follow-up.

## Measurements:

Patients were evaluated at baseline, 1 year and 4 years after LAGB for excess weightloss (EWL), arterial blood pressure (BP), metabolic factors including leptin, adiponectin, glucose, HbA1C, insulin, Homeostasis model assessment-insulin resistance (HOMA-IR). Endothelial function was evaluated as reactive hyperemic index (RHI) and assessed using the EndoPAT 2000 device and arterial stiffness was determined by cardio – ankle vascular index (CAVI) using a VaSera VS-1000 vascular screening system (Fukuda Denshi, Tokyo, Japan).

## Results:

Subjects achieved a 29.90±14.76% EWL at one year and 36.57±23.91% EWL at four years after. Also patients demonstrated significant improvement in metabolic parameters: an increase in adiponectin level (from 10.42±7.15 to 15.54±9.30 p<0.001) and a reduction in leptin (from 34.54±16.45 to 30.71±17.45 p<0.001), glucose (from 6.23±2.36 to 5.17±0.54 p=0.002), insulin levels (from 171.07±206.32 to 64.68±40.92 p=0.001.), HbA1c(from 6.15±1.01 to 5.70±0.55 p<0.001). Although, changes in average diastolic blood pressure did not reach significant differences after one and four years post-surgery, however systolic blood pressure was significantly lower four years after. There were statistically significant increase in arterial stiffness after 1 year, but no significant difference was noted after 4 years (6.58±1.77 to 7.03±2.00 m/s; p=0.014 vs to 7.12±2.19 m/s; p=0.153). While, endothelial function did not show any improvement (2.07±0.51 to 2.01±0.54% p=0.948 vs to 2.05±0.42% ; p=0.086).

## Conclusion:

Weight reduction induced by LAGB was associated with significant improvement of metabolic parameters, but not with arterial stiffness and endothelial function.

