

Changes in bone mineral density after sleeve Gastrectomy or gastric bypass: Relationships with variations in vitamin D, ghrelin, and adiponectin levels

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Background: A major long-term concern after gastric bypass (GBP) is the risk of osteoporosis; however, little is known about this complication in patients undergoing sleeve gastrectomy (SG).

Objective: To evaluate changes in bone mineral density (BMD) after GBP and SG, and its relationship with changes in vitamin D, parathyroid hormone (PTH), ghrelin, and adiponectin.

Methods: Twenty-three women undergoing GBP (BMI 42.0 ± 4.2 kg/m²; 37.3 ± 8.1 years) and 20 undergoing SG (BMI 37.3 ± 3.2 kg/m²; 34.2 ± 10.2 years) were studied before and 6 and 12 months after surgery. BMD was measured by dual-energy X-ray absorptiometry. Plasma PTH, 25-hydroxyvitamin D (25-OHD), ghrelin, and adiponectin concentrations were determined. Food as well as calcium and vitamin D supplement intake was recorded. **Results:** Excess weight loss (mean \pm SE), adjusted by baseline excess weight, was 79.1 ± 3.8 % and 74.9 ± 4.1 % 1 year after GBP and SG, respectively ($p = 0.481$). Significant reduction in BMD for total body