

Multivitamin Supplementation and One-Year Weight and Nutritional Outcomes after Roux-en-Y Gastric Bypass

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Background: Obesity is characterized by an abnormal or excessive accumulation of body fat that can be harmful to health [1]. Bariatric surgery is effective for weight loss and improvement of comorbidities but carries a high risk of nutritional deficiencies [2-9]. **Objectives:** To assess the evolution of body weight, serum micronutrient levels, and the effect of multivitamin supplementation during the first year after Roux-en-Y gastric bypass (RYGB). **Methods:** A retrospective longitudinal study including 101 patients who underwent RYGB between January 2022 and February 2024 at the Tâmega e Sousa Local Health Unit. Sociodemographic, clinical, anthropometric, and biochemical data were analyzed at four time points: preoperative, and at 3, 6, and 15 months postoperatively. **Results:** Of the 101 patients included, 89.1% were female. During the first postoperative year, body mass index decreased from 40.35 ± 3.15 to 25.36 ± 2.75 kg/m² ($p < 0.001$). Preoperative vitamin D deficiency was observed (47 ± 19 nmol/L). Significant increases were noted in iron (78 ± 32 to 88 ± 34 µg/dL), folate (6.6 ± 3.4 to 15.1 ± 7.1 ng/mL), vitamin D (47 ± 19 to 82 ± 27 nmol/L), and vitamin B12 (286 ± 130 to 374 ± 222 pg/mL), $p < 0.001$. Supplementation with RYGB-specific multivitamins was associated with more pronounced increases in vitamin D (39 ± 25 vs. 23 ± 23 nmol/L, $p = 0.010$), vitamin B12 (108 ± 236 vs. 9 ± 162 pg/mL, $p = 0.017$), and zinc (3.7 ± 16.9 vs. -7.6 ± 16.9 µg/dL, $p = 0.006$) compared to other supplements. The prevalence of hypertension, type 2 diabetes, and dyslipidemia decreased significantly ($p < 0.001$). **Conclusions:** RYGB was effective in promoting weight loss and improving comorbidities during the first year. Changes in micronutrient levels highlight the importance of monitoring and tailored multivitamin supplementation according to the surgical procedure.

Keywords: Obesity; Bariatric Surgery; Gastric Bypass; Nutritional Deficiencies; Supplements

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