

Vitamin B12 and Vitamin D levels after Sleeve Gastrectomy versus Bypass Bariatric Procedures: A Systematic Review

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ABSTRACT

Background: Vitamin B12 and vitamin D deficiencies are common after bariatric surgery, but comparative evidence between sleeve gastrectomy and bypass procedures remains inconsistent, and a focused synthesis of these outcomes has been lacking.

Aim: This systematic review aimed to synthesize the available evidence on postoperative vitamin B12 and vitamin D status after sleeve gastrectomy compared with bypass bariatric procedures.

Methods: A systematic search was conducted in Scopus, PubMed, and the Cochrane Library for English-language studies published between 2015 and 2026 evaluating postoperative vitamin B12 and/or vitamin D outcomes after sleeve gastrectomy versus bypass procedures. Eligible studies included comparative primary bariatric surgery studies in adults with procedure-stratified postoperative micronutrient data and at least 3 months of follow-up. The findings were synthesized narratively because substantial clinical and methodological heterogeneity precluded meta-analysis.

Results: The search identified 524 records, of which 43 comparative studies were ultimately included. Most included studies were retrospective cohorts, and only one randomized controlled trial was identified. Overall, bypass procedures, particularly RYGB and OAGB, more often showed less favourable postoperative vitamin B12 and vitamin D profiles than sleeve gastrectomy, although findings were inconsistent across studies.

Conclusion: Vitamin B12 and vitamin D disturbances remain common after bariatric surgery, and bypass-based procedures generally appear to confer greater micronutrient risk than sleeve gastrectomy, although the evidence is limited by heterogeneity and methodological constraints.

Keywords: bariatric surgery; sleeve gastrectomy; bypass procedures; Roux-en-Y gastric bypass; one-anastomosis gastric bypass; biliopancreatic diversion; vitamin B12; vitamin D; micronutrient deficiency