

Changes in Dietary Patterns After Metabolic Bariatric Surgery and Their Association with Cognition at 12 Months: Findings from the EMBRACE Study

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Introduction: This study aimed to examine: (1) changes in dietary clusters from baseline to 6-months following a metabolic-bariatric surgery (MBS) and (2) the associations between these clusters and cognition status at 12-months post-surgery.

Methods: Data were collected 3 months pre- and 6 months post-MBS at the Montreal Sacred Heart Hospital (Canada). Three-day food diary records (mobile application Keenoa), anthropometric measures, body composition, and cognitive scores (neuropsychological test battery) were obtained. Dietary clusters were derived using the FASTCLUS procedure based on changes (Δ) in nutrient intakes from pre- to post-MBS. Associations between dietary clusters and cognitive scores measured across several domains (i.e., executive function, memory, processing speed, and global cognition) were assessed using ANCOVA.

Findings: Patients (N = 23) had a mean age of 51 ± 10.4 years and a mean BMI of 46.3 ± 7.7 kg/m². Two dietary clusters were identified based on patterns changes from pre- to 6 months post-surgery. Cluster 1 showed decreases in macronutrient (i.e., protein, fat, carbohydrates) and micronutrient intakes, including sugars, fatty acids, fibers, and total energy, whereas Cluster 2 showed increases in protein, fat, and micronutrient intakes. Cluster 2 was associated with a trend towards an improved cognitive profile; however, this difference was not significant.

Conclusion: These findings demonstrate postoperative dietary heterogeneity and support replication in larger samples. While cognitive differences were not detected, integrating metabolic and gut microbiome data in future analyses may clarify potential mechanisms underlying diet-cognition associations.

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