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## Comparing the impact of two types of bariatric surgery on food preferences: The BARIATASTE pilot study

Erika Guyot<sup>1,2</sup>, Sylvain Iceta<sup>3,4</sup>, Julie-Anne Nazare<sup>1</sup>, Emmanuel Disse<sup>1,5</sup> and Anestis Dougkas<sup>2</sup>

<sup>1</sup>Center for Research in Human Nutrition Rhône-Alpes, Univ Lyon, CarMeN Laboratory, INSERM, INRA, INSA Lyon, Université Claude Bernard Lyon 1, Pierre-Bénite, France,

<sup>2</sup>Institut Paul Bocuse Research Center, Ecully, France,

<sup>3</sup>PSYR2 - Psychiatric disorders: from Resistance to Response, CH Le Vinatier, Université Claude Bernard Lyon 1, Bron, France,

<sup>4</sup>Hospices Civils de Lyon, Referral Center for Eating Disorder, Pierre Wertheimer Hospital, Bron, France and

<sup>5</sup>Hospices Civils de Lyon, Integrated Center for Obesity, Department of Endocrinology and Diabetes, Lyon-Sud Hospital, Pierre-Bénite, France

### Abstract

**Introduction:** Up to day, the most effective treatment for obesity is bariatric surgery. Nevertheless, weight regain may occur in almost 20% of the patients. Furthermore, nutritional complications such as protein malnutrition and vitamin deficiencies remain common. Clinical experience and scientific literature suggest changes in food preferences after bariatric surgery, which may contribute to weight loss and/or weight regain independently of the surgically-induced reduction of energy intake. Yet, there is inconsistency among the studies as they do not always use objective measures to assess food preferences and only few considered and compared the different types of surgical technics. Our objective was to study the impact of the type of bariatric surgery on the liking and wanting of consuming certain foods varying in composition and appearance.

**Materials and methods:** We conducted a cross-sectional clinical trial among 90 patients followed at the Integrated Center for Obesity/Hospital of Lyon. The patients were divided into three groups according to whether they had an unoperated severe obesity (OB), a sleeve gastrectomy (LSG) or a gastric bypass (RYGB). We assessed food preferences using the Leeds Food Preference Questionnaire (LFPQ), a behavioral computer task. Binge eating, impulsivity and food addiction were assessed with self-report questionnaires. Statistical analysis of food preferences included ANOVAs, post-hoc comparisons of groups two-by-two and linear regressions to adjust results for potential confounders. Principal Components Analysis (PCA) and Hierarchical Cluster Analysis (HCA) were performed to determine food preference patterns and groups of individuals with similar food preferences.

**Results:** Our results showed a significant difference in liking scores, with the OB group having higher scores for high-fat savory (HFSA), high-fat sweet (HFSW) and low-fat sweet foods (LFSW) ( $p < 0.0001$ ) relative to LSG and RYGB groups. Additionally, LSG had greater score of liking for HFSA than RYGB ( $p = 0.001$ ). There was a high correlation between the binge eating score and the liking scores for HFSA, HFSW and LFSW ( $p < 0.001$ ).

**Discussion:** Our study expands the knowledge regarding changes in food preferences after bariatric surgery and may help to better understand potential underlying mechanisms by comparing two different surgical technics. This pilot study will be followed by a prospective study of food preferences after bariatric surgery using the LFPQ, a buffet type food in an experimental restaurant and sensory measurements. Eventually, our project may contribute to modulate post-operative nutritional interventions in order to facilitate the adoption of a healthy diet.

### Conflict of Interest

There is no conflict of interest