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Does Taste Perception Change After Bariatric Surgery?

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Background: Bariatric surgery offers the only means of sustained and dramatic weight loss for morbidly obese patients. In our clinical experience, many patients report alterations in their perception of taste after bariatric surgery, including both increased sensitivity to tastes and new aversions to foods. However, little evidence exists as to how these changes affect weight loss after surgery. The aim of this study is to investigate and quantify any changes in taste perception over time following weight loss surgery.

Methods: 55 consecutive bariatric patients were enrolled in this prospective study. Additionally, 33 healthy non-obese controls were recruited. Preoperatively, patients and controls completed a baseline validated taste test that quantifies ability to identify lingual tastes: sweet, sour, bitter, salty, umami. In random order, paper strips containing varying concentrations of each taste solution are presented to participants for identification. At 3-, 6-, and 12-months postoperatively, patients completed the lingual taste test again, as well as a validated qualitative questionnaire of self-perceived changes in taste perception. BMI and percent excess weight loss (%EWL) were also obtained. All analysis was performed using GraphPad Prism 6.

Results: Patients had an average age of 49.2 years, 69.1% were female, 49.1% were white, and average preoperative BMI of 45.3 kg/m². Preoperatively, patients who underwent bariatric surgery had lower total taste scores when compared to controls and published norms (norms 15.7, controls 16.4, patients 13.8, $p < 0.001$). Although 87% of patients reported a change in taste after surgery and 42% reported that they eat less food because it did not taste good, 3-month change in lingual total taste score, sweet score, and salty score were not associated with significant differences in 3-month BMI and %EWL. However, those patients who reported a decrease in taste intensity on questionnaire had a significantly higher 3-month %EWL when compared to those who reported an increase in taste intensity after surgery (decrease 60.7 vs. decrease 39.5%, $p\text{-value} = 0.025$). Preoperative sweet score was negatively correlated with 3-month BMI ($r = -0.424$, $p = 0.027$) and 6-month BMI ($r = -0.764$, $p = 0.027$).

Conclusions: Preop bariatric surgery patients are more taste-insensitive than normal weight controls or societal norms. Those patients with the highest BMIs at 3- and 6-months post surgery had the lowest preoperative sweet taste scores. Negative correlations between preoperative sweet score with 3- and 6-month postoperative BMI may indicate a possible mechanism for increased weight loss after surgery. Self-reported decreases in taste intensity were associated with significantly increased postoperative %EWL. Changes in taste intensity may be more important than taste discrimination in the first 3-months post-surgery for increased weight loss after bariatric surgery. Increasing taste perception may aid in enhancing post op weight loss.