Benefits of gastric bypass surgery linked to changes in sweet taste preference

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Worldwide, the number of patients struggling with obesity is rapidly increasing in both adults and children. Diet and exercise are the mainstays of treatment for obesity, but have limited effectiveness. While bariatric surgery can produce sustained and significant weight loss for most patients, not all patients experience similar benefits. The reasons for this variation are unknown, but researchers at the Johns Hopkins University School of Medicine believe that part of the answer may lie in how taste preferences are altered by weight loss surgery.

Kimberley Steele MD PhD, Principal Investigator and Director of Bariatric Research at Hopkins, was inspired to investigate this phenomenon after observing that her gastric bypass patients had a heightened sensitivity to sweet foods after surgery. Dr. Steele and her team of neuroscientists and imaging specialists hypothesized that the factors responsible for variation in weight loss following bariatric surgery may lie not just in the gut but also in the brain.

Dr. Steele's team studied taste preferences for sugars and fats in patients prior to surgery and up to 3 months after Roux-en-Y gastric bypass (RYGB) or vertical sleeve gastrectomy (VSG). While both RYGB and VSG procedures reduce the size of the stomach, RYGB also reroutes the progression of food through the intestines. Thus it alters many of the gut responses that would usually be triggered during digestion. Their preliminary data show that all patients experienced a decrease in their liking of sweet taste, but a more pronounced effect was observed with RYGB. No changes in fat preference were observed in either group.

"These preliminary data suggest that the changes in sweet taste preference in individuals who had RYGB may be driven by alterations in the reward value of food induced by the anatomical and/or metabolic changes that occur with RYGB." says Dr. Kimberly Smith, a postdoctoral fellow and co-investigator on the team.

A better understanding of what drives changes in diet selection following bariatric surgery may allow clinicians to predict which patients will respond best to different types of surgery, and may provide insight into the mechanisms responsible for overeating in the obese, of potential importance to the development of surgical and non-surgical approaches to the treatment of obesity.

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