



Gut hormone profiles following bariatric surgery favor an anorectic state, facilitate weight loss, and improve metabolic parameters.

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OBJECTIVE: To study the effect of bariatric surgery on the entero-hypothalamic endocrine axis of humans and rodents. **BACKGROUND:** Bariatric surgery is the most effective obesity treatment as it achieves substantial and sustained weight loss. Glycemic control and enhanced satiation improve before substantial weight loss occurs. Gut peptides, acting both peripherally and centrally, contribute to glycemic control and regulate food intake. **METHODS:** We examined meal-stimulated responses of insulin, ghrelin, peptide YY (PYY), glucagon-like-peptide-1 (GLP-1), and pancreatic polypeptide (PP) in humans and rodents following different bariatric surgical techniques. **RESULTS:** Compared with lean and obese controls, patients following Roux-en-Y gastric bypass (RYGB) had increased postprandial plasma PYY and GLP-1 favoring enhanced satiety. Furthermore, RYGB patients had early and exaggerated insulin responses, potentially mediating improved glycemic control. None of these effects were observed in patients losing equivalent weight through gastric banding. Leptin, ghrelin, and PP were similar in both the surgical groups. Using a rodent model of jejuno-intestinal bypass (JIB), we showed elevated PYY and GLP-1 in JIB rats compared with sham-operated rats. Moreover, exogenous PYY reduced food intake and blockade of endogenous PYY increased food intake. Thus, higher plasma PYY following JIB may contribute to reduced food intake and contribute to weight loss. **CONCLUSIONS:** Following RYGB and JIB, a pleiotropic endocrine response may contribute to the improved glycemic control, appetite reduction, and long-term changes in body weight.