In the fight against obesity: Two peptides, One route

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Obesity is a major epidemic which results from excessive energy intake and moderate energy expenditure. Because food is the main source of energy, understanding the mechanisms which control food intake forms the frontline in the fight against obesity. There are two general mechanisms which regulate food intake, short-term and long-term. The short-term mechanism, the focus of our laboratory, comprised of two components, meal size (MS) and intermeal meal interval (IMI) length, and it is regulated by peptides secreted from the gastrointestinal (GI) tract e.g. cholecystokinin (CCK) and gastrin releasing peptide (GRP) and stimulate central satiety areas to reduce MS and prolong the IMI. By utilizing a local, site-specific, microvascular catheterization technique we have shown that infusion of various forms of CCK and GRP into the celiac artery (supplies stomach and upper duodenum) and cranial mesenteric artery (supplies small and large intestine) in 1/10 of the doses given by other routes e.g. intraperitoneal injection reduce MS and prolong IMI length ten times more than those routes. Therefore, the gastrointestinal tract contains site(s) which regulates MS and IMI length, and the site-specific technique utilized in our work can be used as an anti-obesity drug delivery system for local targets in the gut.

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