

Anorexigenic postprandial responses of PYY and GLP1 to slow ice cream consumption: preservation in obese adolescents, but not in obese adults

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Eating slowly increases the postprandial responses of some anorexigenic gut hormones in healthy lean subjects. As the rate of food intake is positively associated with obesity, aim of the study was to determine whether eating the same meal at different rates evokes different postprandial anorexigenic responses in obese adolescent and adult subjects.

Eighteen obese adolescents and adults were enrolled. A test meal was consumed on two different sessions by each subject, meal duration taking either 5 (fast feeding) or 30 min (slow feeding). Circulating levels of GLP-1, PYY, glucose, insulin and triglycerides were measured over 210 min. Visual analog scales (VASs) were used to evaluate the subjective feelings of hunger and satiety.

Fast feeding did not stimulate GLP-1 release in obese adolescent and adults, whereas slow feeding increased circulating levels of GLP-1 only in obese adolescents. Plasma PYY concentrations increased both in obese adolescents and adults, irrespective of the eating rate, but slow feeding was more effective in stimulating PYY release in obese adolescents than adults. Simultaneously, slow feeding evoked a higher satiety only in obese adolescents compared to fast feeding, but not in obese adults. In obese adolescents slow feeding decreased hunger (only at 210 min). Irrespective of the eating rate, postprandial responses of insulin and triglycerides were higher in obese adults than obese adolescents.

In conclusion, slow feeding leads to higher concentrations of anorexigenic gut peptides and favours satiety in obese adolescents, but this physiological control of food intake is lost in obese adults.