Hedonic eating in Prader-Willi syndrome is associated with blunted PYY secretion

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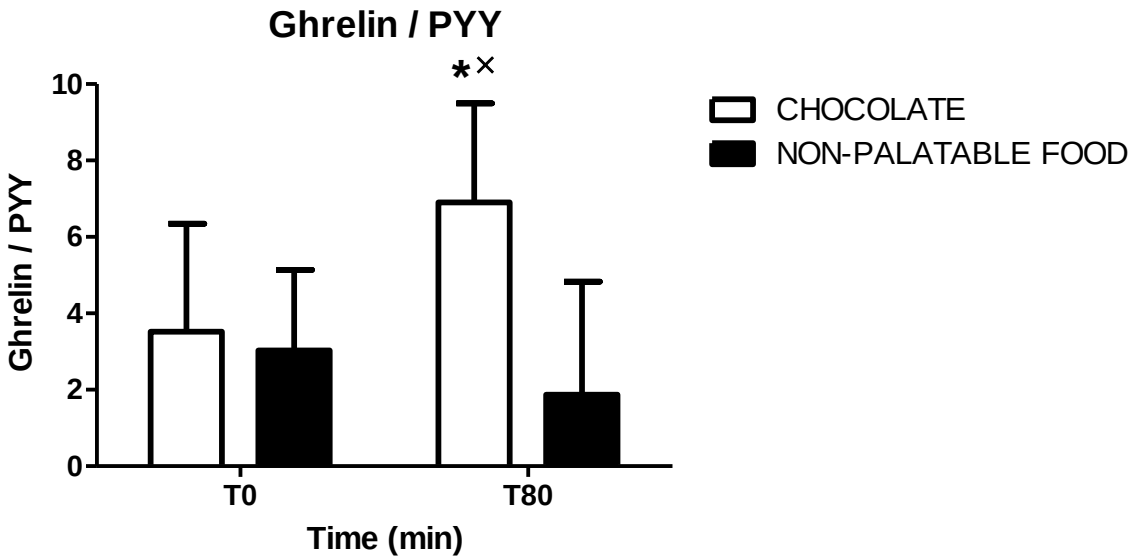
Hedonic and homeostatic hunger represent two different forms of eating: just for pleasure or following energy deprivation, respectively. Consumption of food for pleasure was reported to be associated with increased circulating levels of both the orexigenic peptide ghrelin and some specific endocannabinoids in normal-weight subjects and patients with morbid obesity. Up to date, the effects of palatable food on these mediators in Prader-Willi syndrome (PWS) are still unknown.

To explore the role of some gastrointestinal orexigenic and anorexigenic peptides and endocannabinoids (and some related congeners) in chocolate consumption, we measured changes in circulating levels of ghrelin, cholecystokinin (CCK), peptide YY (PYY), anandamide (AEA), 2-arachidonoyl-glycerol (2-AG), palmitoylethanolamide (PEA) and oleoylethanolamide (OEA) in eight satiated adult male PWS patients (age: 35.6±8.3 yr; BMI: 38.8±10.1 kg/m2) after consumption of chocolate and, on a separate day, of a non-palatable isocaloric food with the same macronutrient composition. Evaluation of hunger and satiety was also performed by visual analogic scale.

The anticipatory phase and the consumption of food for pleasure were associated with decreased circulating levels of PYY. An increase in PEA levels was also observed. By contrast, circulating levels of ghrelin, CCK, AEA, 2-AG and OEA did not differ before and after the exposure/ingestion of either chocolate or non-palatable foods. Hunger and satiety were similar in the hedonic and non-palatable sessions.

In conclusion, when motivation to eat is promoted by highly palatable foods, a depressed post-prandial PYY secretion is observed in PWS. Although preliminary, these findings seem to hypothesize a possible role of PYY agonists in the management of PWS patients.



* p < 0.05 vs. T80 of the non-palatable session; × p < 0.05 vs. T0 of the hedonic session.