Is hunger suppression the key to reducing risk of overeating and obesity?

30 July 2014

The failure of some obese individuals to generate or detect adequate signals to stop eating has been frequently been reported in medical science. Researchers at the University of Leeds, UK have devised a simple metric to quantify satiety responsiveness - Satiety Quotient (SQ) – and are applying it to their research to find out why some people struggle to manage their weight and whether certain foods may help to amplify sensations of fullness.

In an experiment at the University of Leeds, researchers used the SQ in conjunction with different amounts of whole raw almonds mixed into breakfast cereal to identify individuals either high or low in satiety responsiveness. Previous research has demonstrated that acute almond consumption suppresses hunger and desire to eat, and cause a reduction in serum glucose concentrations when consumed as part of a meal.

Participants came to the research unit over four separate days to consume their breakfast and to record their sensations of hunger and fullness in the following period. Individuals were identified as being low in satiety responsiveness when their hunger was only weakly reduced by the breakfasts on three or more occasions. Participants next underwent a series of behavioral and psychological tests where their body composition and metabolic rate were analysed, and their experience of food cravings over the previous week, meal size and the rewarding appeal of high fat and low fat foods were measured.

Overall, increasing the number of almonds in the breakfast resulted in a dose related decrease in ratings of hunger and energy intake. However, the study found that those low in satiety responsiveness ("low satiety phenotype") were characterised by greater levels of opportunistic eating (eating in response to situation, mood or environmental cues), a greater preference for high-fat compared to low-fat foods, and reported feeling loss of control over their eating behavior over the previous seven days. Furthermore, they consumed more calories at a buffet lunch. "The characteristics that were identified in the low satiety phenotype are markers of poor appetite control and would indicate an increased level of vulnerability to overconsumption and weight gain," said Dr Michelle Dalton, post-doctoral researcher for the study. "These findings suggest that the low satiety phenotype do not respond sensitively to ingested nutrients, causing them to display habits and preferences that would predispose them to overeat."

Future research will examine the potential of almonds and other healthy snack foods to improve satiety responsiveness and increase control over food intake.

This research was supported by the Almond Board of California.

Provided by Society for the Study of Ingestive Behavior