Brain responses of obese individuals are more weakly linked to feelings of hunger

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Research to be presented at the Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), the foremost society for research into all aspects of eating and drinking behavior, finds that that feelings of hunger have less influence on how the brain responds to the smell and taste of food in overweight than healthy weight individuals.

The research team scanned the brains of healthy and overweight participants and found that the overweight participants had greater activity in many key brain regions that respond to the smell and taste of food. An important new finding was that the brain responses of healthy weight participants were associated with their feelings of hunger, whereas the responses of overweight participants did not depend on whether the participants felt hungry or full. Dana Small from The John B Pierce Laboratory and Yale University says, "We are all guilty of mindlessly reaching for a handful of peanuts or chips. The amygdala is a region of the brain important for orchestrating this behavior. Our findings show that feelings of fullness are effective in reducing amygdala responses in healthy but not overweight people".

In an environment that is rich in sights and smells of food, one factor that may contribute to overeating is whether eating serves to dampen the brain's responses to food cues that usually encourage eating. The team also reports that activation of the amygdala predicted weight gain by participants one year after the scanning session. "For some people feelings of fullness may provide a good brake on eating behavior. For others, the brake may be less effective, resulting in more eating in the

absence of hunger, with subsequent weight gain", says Small.

Provided by Society for the Study of Ingestive Behavior