

Study examines oxytocin's role in binge eating

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A study by York University researcher Caroline Davis and her colleagues at the Centre for Addiction and Mental Health (CAMH) is the first to demonstrate that variants of the Oxytocin Receptor (OXTR) gene contribute to why some of us overeat or engage in episodes of binge eating. They investigated how the OXTR gene influences appetite, food preferences, food intake and personality risk traits associated with brain-reward mechanisms. These findings will be presented this week at the Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), the society for the research into all aspects of eating and drinking behavior.

Oxytocin is an evolutionarily ancient molecule produced in the brain that acts at sites throughout the body by triggering the OXTR. It influences many survival behaviors including those used to manage stress, according to Dr. Caroline Davis, the lead researcher on the study. "For example, oxytocin enhances prosocial and related behaviors. On the other hand, increases in oxytocin tend to decrease appetite - especially the consumption of sweet carbohydrates."

Over the past decade, Davis and her co-investigator Dr. James Kennedy, Director of the Department of Neurogenetics at CAMH, assessed a large group of participants ranging in age from 27-50 years. The group had a broad range of body weights and included a substantial number with [binge-eating](#) habits. Among other measures, a blood sample was collected from each participant in order to analyze their DNA, the molecules that carry each individual's unique genetic information.

The DNA analysis uncovered a new link between oxytocin and behaviors associated with binge eating. The researchers focused on seven sites in the DNA where chemical instructions for making OXTR could vary between individuals. These "[single nucleotide polymorphisms](#)" (SNPs) were already suspected to be associated with [psychological traits](#). The researchers collected questionnaires about their participants' differences in reward sensitivity, punishment sensitivity, sugar/fat [food preferences](#), and overeating habits, to be correlated with the OXTR genetic information.

The researchers tested the prediction that these SNPs relate to psychological risk factors, which in turn are associated with overeating behaviors. "Three SNPs were significantly related to the psychological traits, which collectively accounted for 37% of the variance in overeating," says Davis. "Another SNP was directly related to overeating. These results support the role of genes in giving rise to traits that regulate behavior, and highlight the importance of oxytocin in [overeating](#)."

More information: Polymorphisms of the Oxytocin Receptor Gene (OXTR) and Overeating: The Mediating Role of Endophenotypic Risk Factors, Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), 2016.

Provided by Society for the Study of Ingestive Behavior

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