Medical Xpress

The biology behind binge eating

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A study led by Kelly Klump, Michigan State University, found that female rats are much more likely to binge eat than male rats, suggesting biology plays a role in eating disorders. Credit: Michigan State University

Female rats are much more likely to binge eat than male rats, according to new research that provides some of the strongest evidence yet that biology plays a role in eating disorders.

The study, by Michigan State University scientists, is the first to establish sex differences in rates of binge eating in animals and has

implications for humans. Binge eating is one of the core symptoms of most eating disorders, including bulimia nervosa and the binge/purge subtype of anorexia nervosa, and females are four to 10 times more likely than males to have an eating disorder.

"Most theories of why eating disorders are so much more prevalent in females than males focus on the increased cultural and psychological pressure that girls and women face," said Kelly Klump, lead author and professor of psychology. "But this study suggests that biological factors likely contribute as well, since female rats do not experience the psychosocial pressures that humans do, such as pressures to be thin."

Klump and colleagues ran a feeding experiment with 30 female and 30 male rats over a two-week period, replacing the rodents' food pellets periodically with vanilla frosting. They found that the rate of binge eating "proneness" (i.e., the tendency to consume the highest amount of frosting across all feeding tests) was up to six times higher in female as compared to male rats.

The tendency to binge eat may be related to the brain's natural reward system, or the extent to which someone likes and seeks reward, Klump said. The MSU researchers currently are testing the rats to see if female brains are more sensitive and/or responsive to rewarding stimuli (e.g., high-fat, high-sugar food) and the chemicals that trigger reward behavior.

The answers could ultimately help improve therapy – both counseling and medications – for those with eating disorders.

"This research suggests there is probably a biological difference between males and females that we need to explore to understand risk factors and mechanisms," Klump said.

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The study is published online in the *International Journal of Eating Disorders*. Klump's co-authors are Cheryl Sisk, psychology professor, and graduate students Sarah Racine and Britny Hildebrandt.

Provided by Michigan State University

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