

'Hunger hormone' ghrelin affects monetary decision making

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Higher levels of the stomach-derived hormone ghrelin, which stimulates appetite, predict a greater preference for smaller immediate monetary rewards over larger delayed financial rewards, a new study finds. The study results will be presented at ENDO 2021, the Endocrine Society's annual meeting.

This research presents novel evidence in humans that ghrelin, the so-called "hunger hormone," affects monetary decision making, said co-investigator Franziska Plessow, Ph.D., assistant professor of medicine at Massachusetts General Hospital and Harvard Medical School, Boston. She said recent research findings in rodents suggested that ghrelin may play a part in impulsive choices and behaviors.

"Our results indicate that ghrelin might play a broader role than previously acknowledged in human [reward](#)-related behavior and decision making, such as monetary choices," Plessow said. "This will hopefully inspire future research into its role in food-independent human perception and behavior."

Ghrelin signals the brain for the need to eat and may modulate brain pathways that control reward processing. Levels of ghrelin fluctuate throughout the day, depending on food intake and individual metabolism.

This study included 84 female participants ages 10 to 22 years: 50 with a low-weight eating disorder, such as anorexia nervosa, and 34 healthy control participants. Plessow's research team tested blood levels of total ghrelin before and after a standardized meal that was the same for all participants, who had fasted beforehand. After the meal, participants took a test of hypothetical financial decisions, called the delay discounting task. They were asked to make a series of choices to indicate their preference for a smaller immediate monetary reward or a larger delayed amount of money, for instance, \$20 today or \$80 in 14 days.

Healthy girls and [young women](#) with higher ghrelin levels were more likely to choose the immediate but smaller monetary reward rather than waiting for a larger amount of money, the researchers reported. This preference indicates more impulsive choices, Plessow said.

The relationship between ghrelin level and monetary choices was absent in age-matched participants with a low-weight eating disorder. People with this eating disorder are known to have ghrelin resistance, and Plessow said their finding might be another indicator of a disconnect between [ghrelin](#) signaling and behavior in this population.

The study received funding from the National Institutes of Health and a Charles A. King Trust Research Fellowship Award to Plessow. Naila Shiraliyeva, M.D., a research fellow at Massachusetts General Hospital, will present the study findings at the meeting.

Provided by The Endocrine Society

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