

# Stress may increase desire for reward but not pleasure, research finds

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Credit: Bill Kuffrey/public domain

Feeling stressed may prompt you to go to great lengths to satisfy an urge for a drink or sweets, but you're not likely to enjoy the indulgence any more than someone who is not stressed and has the same treat just for pleasure, according to new research published by the American Psychological Association.

"Most of us have experienced [stress](#) that increases our craving for rewarding experiences, such as eating a tasty bar of chocolate, and it can make us invest considerable effort in obtaining the object of our desire, such as running to a [convenience store](#) in the middle of the night," said lead author Eva Pool, MS, a doctoral student at the University of Geneva. "But while stress increases our desire to indulge in rewards, it does not necessarily increase the enjoyment we experience."

Stress prompted chocolate lovers in an experiment to exert three times as much effort to smell chocolate than unstressed chocolate lovers, but both groups reported about the same level of enjoyment when they got a whiff of the pleasing aroma, according to the study, published in APA's *Journal of Experimental Psychology: Animal Learning and Cognition*.

For the experiment, researchers recruited 36 university students, of whom 19 were men, who said they love chocolate. To induce stress, the researchers asked students to keep one hand in ice-cold water while being observed and videotaped. Another group immersed a hand in lukewarm water. Ten minutes before and 30 minutes after the task, researchers collected samples of the participants' saliva and tested them for levels of cortisol, a hormone involved in [stress response](#). Following the stress conditioning, all participants had to press a handgrip for the chance to smell chocolate when they saw a certain symbol. The researchers measured the amount of effort participants invested for a chance to smell the [chocolate](#), and asked participants how pleasant they found the odor.

"Stress plays a critical role in many psychological disorders and is one of the most important factors determining relapses in addiction, gambling and binge eating," said another author, Tobias Brosch, PhD, also of the University of Geneva. "Stress seems to flip a switch in our functioning: If a stressed person encounters an image or a sound associated with a pleasant object, this may drive them to invest an inordinate amount of

effort to obtain it."

Previous research with laboratory rats supports the idea that wanting and liking rely on two distinct networks of neurons in the brain that can be activated independently, according to the study. "Although the findings with rodents provide a novel explanation for the stress-induced increase of reward pursuits, to the best of our knowledge, they have never been demonstrated in humans," the study said.

More studies with people are necessary to replicate the findings, according to the authors, who recommended further research to explore the effect of more intense everyday life stressors on human wanting and liking.

**More information:** "Stress Increases Cue-Triggered 'Wanting' for Sweet Reward in Humans," Eva Pool, MS, Tobias Brosch, PhD, Sylvain Delplanque, PhD, and David Sander, PhD, University of Geneva; *Journal of Experimental Psychology: Animal Learning and Cognition*; online, Dec. 22, 2014.

[www.apa.org/pubs/journals/releases/xan-0000052.pdf](http://www.apa.org/pubs/journals/releases/xan-0000052.pdf).

Provided by American Psychological Association

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