

New Research From Psychological Science

August 02, 2019



Read about the latest research published in *Psychological Science*:

[Capture and Control: Working Memory Modulates Attentional Capture by Reward-Related Stimuli](#)

Poppy Watson, Daniel Pearson, Michelle Chow, Jan Theeuwes, Reinout W. Wiers, Steven B. Most, and Mike E. Le Pelley



Rewards can capture individuals' attention and distract them from their actual goals, but can this effect be controlled? In this study, participants' eye gaze was tracked while they searched for a target (a gray diamond) in a set of distractors (gray circles). Participants received points as a reward when they did not gaze at any of the distractors and moved their gaze only from the center of the screen to the target. In some cases, one of the circles was colored; different colors indicated a high reward or a low reward (i.e., more or fewer points). While searching for the diamond, participants also performed a demanding or a simple memory task (memorize either a set of 5 digits or only 1 digit, respectively). Participants were more likely to look at the circle indicating the reward when the reward was high than when it was low, especially while performing the more demanding memory task, which reduced their cognitive resources. They also looked at the colored circle indicating a low reward more often than at a gray circle (which provided no reward information), especially while performing the demanding memory task. These findings indicate that the reward signal and the physical features of the stimulus captured participants' attention, but control processes, when available, attenuated this effect. In another experiment, when both high- and low-reward signals were presented, participants looked more at the high-reward signal. Applied to the clinical domain, the authors suggest that this implies that high-reward associations to drug-related stimuli might promote relapse in recovering individuals with addiction, especially when cognitive resources are scarce. However, training in cognitive control might reduce the influence of such stimuli on behavior and prevent relapses.

[High Endogenous Testosterone Levels Are Associated With Diminished Neural Emotional Control in](#)

[Aggressive Police Recruits](#)

Reinoud Kaldewaij, Saskia B. J. Koch, Wei Zhang, Mahur M. Hashemi, Floris Klumpers, and Karin Roelofs

People might have difficulty controlling emotional responses when in situations that increase testosterone levels, this research suggests. Police officers might have difficulties controlling emotional responses partly because of the effect of high levels of testosterone on the brain circuits that control emotion, this research suggests. While in an MRI scanner, Dutch police recruits completed a task in which they had to approach or avoid angry and happy faces by moving a joystick. Researchers also collected saliva samples to measure testosterone levels, and participants self-reported their levels of aggression. Regardless of testosterone and aggression levels, participants were faster and more accurate at approaching happy faces and avoiding angry faces (congruent trials) than at approaching angry faces and avoiding happy faces (incongruent trials that required emotional control). For the trials that required emotional control, brain activation was stronger in the neural control circuits (i.e., anterior prefrontal cortex control over the amygdala increased) for participants with higher levels of aggression. But activation in these same circuits was lower in participants who had high testosterone in addition to high aggression levels, indicating that such a high aggressivity–testosterone combination may decrease the efficiency of emotional control. Hence, aggressive individuals who are mentally healthy seem able to use a brain circuit to regulate their emotions, but this regulation might fail under challenging situations known to increase testosterone. These findings might explain why police officers, selected for their high emotional control, may show poor control (e.g., using excessive violence) in certain situations and may have implications for selection and training programs for first responders.

[Childhood Adversity, Socioeconomic Instability, Oxytocin-Receptor-Gene Methylation, and Romantic-Relationship Support Among Young African American Men](#)

Steven M. Kogan, Dayoung Bae, Junhan Cho, Alicia K. Smith, and Shota Nishitani

When people are exposed to stressful environments, a methyl group can be added to the DNA base of the oxytocin receptor gene (OXTR). The addition of this methyl group tends to silence the expression of this gene and might be associated with difficulties in forming nurturing, supportive romantic relationships. Kogan and colleagues studied the links among childhood adversity, socioeconomic instability, *OXTR* methylation, and supportive romantic relationships. They analyzed data from a study of relationships and health-risk behavior among African American men aged 19 to 22 years in the rural southern U.S. Participants were assessed three times throughout 3 years. DNA analysis was performed on their saliva, and they reported their (a) relationship status and level of support (e.g., “How often do you protect and look after your partner”); (b) socioeconomic instability, assessed by economic distress, school enrollment or employment status, and number of times they had moved in the past 6 months; and (c) childhood adversity, assessed by sexual abuse and physical and emotional abuse or neglect. Results indicated that men with higher levels of childhood adversity, economic instability, and *OXTR* methylation reported providing less support to their romantic partners. *OXTR* methylation predicted decreases in relationship support during a 1.5-year period. Childhood adversity was indirectly associated with *OXTR* methylation because of its associations with socioeconomic instability, which predicted elevated *OXTR* methylation. Thus, *OXTR* methylation might explain how socioeconomic instability and childhood adversity end up affecting romantic relationships.