Decisions and stress and adolescents

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Stressing out about a boyfriend or girlfriend or history test is part of a typical day for a teenager. But what is making these insignificant events seem like the end of the world?

With help from the National Science Foundation (NSF), Adriana Galván, a psychologist at the University of California, Los Angeles (UCLA), has been studying the effects of stress on teenagers and adults.

"Teenagers experience stress as more stressful," says Galván, "and if that stress is interfering with their decision making, it's really important to understand the neural mechanism that's underlying this connection between high levels of stress and poor decision making."

Galván's ground-breaking study focuses on the effect stress has on brain

function. Study participants report their stress level daily, using a one to seven scale--seven being the worst. If participants rate their day as a seven, Galván will ask them to visit the lab for tests.

Nilufer Rustomji, an 18-year-old participant of the study, rates her day's stress level as a seven. Monitoring her brain function with Magnetic Resonance Imaging (MRI), Galván asks Rustomji to play a simple "reward and risk" video game, which involves wagering money.

"During the game, Rustomji is evaluating risk," explains Galván, "and while she's doing that evaluation, we are taking pictures of the brain to see how the brain makes [such] risky choices."

After computer processing the images, Galván analyzes how stress and risk influence what she calls the "reward system."

"The teenagers show more activation in the reward system than adults when making risky choices, and they are also making more risky choices than adults are," says Galván.

The prefrontal cortex is the part of the brain that helps regulate behavior but in adolescents, this region is not fully developed.

To help lower teens' stress, Galván says teens should double check and think about how the consequences will affect them later. "When you are stressed out as a teenager, it's interfering with your ability to make decisions," says Galván. "It's interfering with how the brain functions in regions that are still developing, mainly the reward system and the prefrontal cortex."

Galván's study is helping to provide deeper insight into why teenagers often act the way they do.

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