

Teens' Brains Are More Sensitive to Rewarding Feedback From Peers

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Teenagers are risk-takers — they're more likely than children or adults to experiment with illicit substances, have unprotected sex, and drive recklessly. But research shows that teenagers have the knowledge and ability to make competent decisions about risk, just like adults. So what explains their risky behavior?

In a new report, psychological scientists Laurence Steinberg and Jason Chein of Temple University and Dustin Albert of Duke University argue that some teens' risky behavior reflects the unique effect of peer influence on the still-developing teenage brain.

Their report is published as part of a special issue of [*Current Directions in Psychological Science*](#), a journal of the [Association for Psychological Science](#). The issue is focused on understanding the teenage brain.

Teens spend an increasing amount of time with their peers, and the feedback they get from their friends and classmates may tune the brain's reward system to be more sensitive to the reward value of risky behavior. This sensitivity leads teens to focus on the short-term benefits of risky choices over the long-term value of safe alternatives.

The brain's cognitive control system, which helps to "put the brakes" on risky behavior, matures more gradually.

"If adolescents made all of their decisions involving drinking, driving, dalliances, and delinquency in the cool isolation of an experimenter's testing room, those decisions would likely be as risk averse as those of adults," argue Steinberg and colleagues. "But therein lies the rub: Teenagers spend a remarkable amount of time in the company of other teenagers."

The authors point to a new wave of research at the intersection of neuroscience and behavior that suggests that the company of other teenagers fundamentally changes the calculus of adolescent risk taking.

In a study published in 2009, Steinberg and colleagues found that early adolescents, around 14 years old, took twice as many risks in a driving simulation game when they were tested with peers than when they were tested alone. Older adolescents' driving was about 50% riskier in the company of peers.

In a more recent study, Steinberg and colleagues found that adolescents, but not adults, took more risks when they were observed by their peers. They also showed greater activation of brain structures, such as the ventral striatum and orbitofrontal cortex, that are involved in evaluating rewards.

Taken together, findings from this line of research reveal that being around peers can heighten teens' risky decision making by changing the way their brains process rewards.

"The phrase 'What were you thinking?' is known to every parent of a teenager," observes Randall W. Engle, professor of psychology at Georgia Tech and editor of *Current Directions*. And yet, psychological research has historically neglected teenagers, focusing instead on children or adults.

Now, with the emergence of new techniques for studying the brain and its development, researchers are beginning to understand more about the way teens think and behave.

"The articles in this special issue on the teen brain provide the latest findings from human imaging and animal studies on topics that range from self-control to peer influence to policy," says B.J. Casey, guest editor of the special issue and Director of the Sackler Institute for Developmental Psychobiology at Weill Cornell Medical College.

Casey emphasizes that, rather than portraying the teen brain as somehow 'defective,' "the contributors paint a picture of a brain that is sculpted by both biological and experiential factors to adapt to the unique social, physical, sexual and intellectual challenges of adolescence."

The articles in the April 2013 special issue of *Current Directions* will be available without a subscription for the first three months. A complete table of contents can be found at:

<http://cdp.sagepub.com/content/22/2.toc>