

Name: _____ Class: _____

Fear Prompts Teens to Act Impulsively

Brain activity may help explain why crime peaks during teen years

By Laura Sanders
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Teenagers often face the stereotype of being rebellious and impulsive. But can science prove this? A 2013 study suggests that teenagers are impulsive and do not have control of their behavior. This could be a part of their neurological development. As you read the article, take notes on new explanations of teen behavior.

- [1] A threatened teen may not back down. One reason: The teenage brain appears to undergo a rewiring that can prompt this response to fear. That's the finding of new research presented at a meeting on November 10, 2013. Its authors say their findings may help explain why criminal activity peaks during the teen years.



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They reported their observations in San Diego at the Society for Neuroscience meeting. (Neuroscience deals with the structure or function of the brain and other parts of the nervous system.)

Kristina Caudle of Weill Cornell Medical College in New York City and her co-workers tested impulse control¹ in 83 people. This is an ability to overcome our emotions so that we don't react in ways we shouldn't. The test volunteers ranged in age from 6 to 29. Caudle's team asked each to press a button when a photo of a happy face quickly flashed onto a computer screen. The scientists said not to press the button when a threatening face showed up.

People between the ages of 13 and 17 were more likely than at any other age to push the button when shown a face with a threatening expression. This reaction was viewed as evidence of poor impulse control.

- [5] The scientists wanted some idea of what was happening in the volunteers' brains during the tests. So they performed brain scans² using what is known as functional magnetic resonance imaging.³ These scans showed that when people looked at the faces, activity sometimes increased in a brain area called the orbital frontal cortex. In fact, it only increased when someone successfully avoided pushing the button. That suggests this part of the brain helps curb the impulse to react inappropriately, Caudle reported.

1. "Impulse control" refers to the ability to overcome human emotions so that people don't react in ways they know are inappropriate. This behavior can be controlled in part by the brain. Such control may keep people who are angry or hurt from rising to violence or lashing back with hurtful comments.
2. A brain scan involves the use of an imaging technology, typically using X rays or a magnetic resonance imaging (or MRI) machine, to view structures inside the brain. With MRI technology — especially the type known as functional MRI (or fMRI) — the activity of different brain regions can be viewed during an event, such as viewing pictures, computing sums or listening to music.

Her team doesn't know why younger children don't show the same poor impulse control when viewing a threatening face. More studies could determine how parts of the brain that control behavior grow and change during the teen years, Caudle said.

Her team's finding also may help explain recent trends in teen fighting. Roughly five out of every 100 teen girls in the United States — and twice as many boys — report experiencing serious violence, a recent study found. It linked that violence to drops in IQ.⁴ If confirmed, latest data would suggest parents and schools should realize how vulnerable teens are to behaviors that might pose harm to their still-developing brains.

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3. Functional Magnetic Resonance Imaging (fMRI) is a special type of brain scan used to study brain activity. It uses a strong magnetic field to monitor blood flow in the brain. Tracking the movement of blood can tell researchers which brain regions are active.
4. "IQ" stands for Intelligence Quotient; A score derived from one of several standardized tests designed to assess human intelligence.

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. Part A. Which of the following best describes the central idea of the text? [RI.2]
 - A. Teenagers are more impulsive than adults and small children because their brains process information quicker than any other age group.
 - B. Teenagers are impulsive when faced with a threatening situation because they have not learned how to avoid dangerous situations.
 - C. Teenage boys are more likely to act violently because they are more impulsive than girls because they do not respect their peers.
 - D. Teenagers are more likely to act impulsively when faced with a threatening situation because of the way their brains develop over time.

2. Part B. Which of the following quotes best supports your answer to Part A? [RI.1]
 - A. "A threatened teen may not back down. One reason: The teenage brain appears to undergo a rewiring that can prompt this response to fear." (Paragraph 1)
 - B. "These scans showed that when people looked at the faces, activity sometimes increased in a brain area called the orbital frontal cortex." (Paragraph 5)
 - C. "More studies could determine how parts of the brain that control behavior grow and change during the teen years, Caudle said." (Paragraph 6)
 - D. "Roughly five out of every 100 teen girls in the United States — and twice as many boys — report experiencing serious violence, a recent study found." (Paragraph 7)

3. PART A: As it is used in paragraph 5, the word "curb" most closely means: [RI.4]
 - A. edge
 - B. push
 - C. reduce
 - D. allow

4. PART B: Which detail from the paragraph provides the best clue to the meaning of the word "curb," as it is used in this context? [RI.1]
 - A. "increased"
 - B. "successfully avoided"
 - C. "pushing the button"
 - D. "react inappropriately"

5. How does paragraph 7 contribute to the development of ideas in the text? [RI.5]
