FEAR PROMPTS TEENS TO ACT IMPULSIVELY BY LAURA SANDERS

Brain activity may help explain why crime peaks during teen years.

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.

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.

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 control** 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.

The scientists wanted some idea of what was happening in the volunteers' brains during the tests. So they performed **brain scans** using what is known as **functional magnetic resonance imaging**. 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.

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**. 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.

Vocabulary Notes

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.

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.