Sara Johnson, an assistant professor at the Johns Hopkins Bloomberg School of Public Health who reviewed the neuroscience in "The Teen Years Explained: A Guide to Healthy Adolescent Development" (Johns Hopkins University, 2009)

Here are five things scientists have learned about the mysterious teen brain.

**1. New thinking skills**

Due to the increase in brain matter, the teen brain becomes more interconnected and gains processing power, Johnson said. Adolescents start to have the computational and decision-making skills of an adult –*if* given time and access to information, she said.

But in the heat of the moment, their decision-making can be overly influenced by emotions, because their brains rely more on the limbic system (the emotional seat of the brain) than the more rational prefrontal cortex, explained Sheryl Feinstein, author of "Inside the Teenage Brain: Parenting a Work in Progress" (Rowman and Littlefield, 2009).

"This duality of adolescent competence can be very confusing," Johnson said, meaning that sometimes teens do things, like punch a wall or drive too fast, when, if asked, they clearly know better.

**2. Intense emotions**

"Puberty is the beginning of major changes in the limbic system," Johnson said, referring to the part of the brain that not only helps regulate heart rate and blood sugar levels, but also is critical to the formation of memories and emotions.

Part of the limbic system, the amygdala, is thought to connect sensory information to emotional responses. Its development, along with hormonal changes, may give rise to newly intense experiences of rage, fear, aggression, excitement and sexual attraction.

Over the course of adolescence, the limbic system comes under greater control of the prefrontal cortex, the area just behind the forehead, which is associated with planning, impulse control and higher order thought.

As additional areas of the brain start to help process emotion, older teens gain some equilibrium and have an easier time interpreting others.

**3. Peer pleasure**

As teens become better at thinking abstractly, their social anxiety increases, according to research in the Annals of the New York Academy of Sciences published in 2004.

Abstract reasoning makes it possible to consider yourself from the eyes of another. Teens may use this new skill to ruminate about what others are thinking of them. In particular, peer approval has been shown to be highly rewarding to the teen brain, Johnson said, which may be why teens are more likely to take risks when other teens are around.

"Kids are really concerned with looking cool – but you don't need brain research to tell you that," she said.

Friends also provide teens with opportunities to learn skills such as negotiating, compromise and group planning. "They are practicing adult social skills in a safe setting and they are really not good at it at first," Feinstein said. So even if all they do is sit around with their friends, teens are hard at work acquiring important life skills.

**4. Measuring risk**

"The brakes come online somewhat later than the accelerator of the brain," said Johnson, referring to the development of the prefrontal cortex and the limbic system respectively.

At the same time, "teens need higher doses of risk to feel the same amount of rush adults do," Johnson said.

Taken together, these changes may make teens vulnerable to engaging in risky behaviors, such as trying drugs, getting into fights or jumping into unsafe water. By late adolescence, say 17 years old and after, the part of the brain responsible for impulse control and long-term perspective taking is thought to help them reign in some of the behavior they were tempted by in middle adolescence, according to McNeely and Blanchard.

**5. 'I am the center of the universe'**

The hormone changes at puberty have huge affects on the brain, one of which is to spur the production of more receptors for oxytocin, according to research detailed in a 2008 issue of the journal Developmental Review.

While oxytocin is often described as the "bonding hormone," increased sensitivity to its effects in the limbic system has also been linked to feeling self-consciousness, making an adolescent truly feel like everyone is watching him or her.

While this may make a teen seem self-centered, the changes in the teen brain may also spur some of the more idealistic efforts tackled by young people throughout history.