

## The Teen Brain

See: <http://ngm.nationalgeographic.com/print/2011/10/teenage-brains/dobbs-text>

### A Work In Progress

We once thought that the human brain was largely formed by elementary school. Brain scans in the 1990's showed us that the adolescent brain changes extensively and isn't fully developed until the early 20's. Some parts develop more quickly than others. The part of the brain that seeks pleasure and reward develops faster in teenagers. One of the last connections in the brain to be completed is that between the prefrontal cortex – where judgement and problem solving skills are formed – and the emotional center of the brain. These links are critical for self-regulation and emotional maturity.

Compared with adults, teens tend to make less use of brain regions that monitor performance, spot errors, plan, and stay focused—areas that adults seem to bring online automatically. This lets the adults use a variety of brain resources and better resist temptation, while the teens use those areas less often and more readily give in to impulses.

The adolescent brain also reacts more positively to rewards and new experiences which impacts their learning patterns and making decisions. This helps explain the teen's quickness of learning and extraordinary receptivity to reward—and his keen, sometimes melodramatic reaction to success as well as defeat.

The past 20 years have explained adolescent behavior as being due to a brain that was not fully developed, was “a work in progress”. Recent studies have a broader, more complex interpretation, seeing the teenager as highly adaptive. In this context, their brain development is seen relative to their ultimately moving away from the safety of home and into a much more complicated environment.

### Adolescence as an Adaptive, Highly Functional Period

New research is combining the older “work in progress” explanation of the teenage brain with a view that sees it more as a uniquely human adaptation.

- A teen's **passion for peers** is related to their attraction for newness – other teens are much more interesting than familiar family members. But it is also an innate survival mechanism. We will live most of our lives, and prosper (or not) in a world run and remade by our peers. Knowing, understanding, and building relationships with them bears critically on success. Our fates are decided by how well we are accepted by our social peers. This helps to explain their preference for doing anything with their peers over doing something with family. The importance of peers also explains the highly emotionally charged reaction when a teen does not get invited to a party.
- **Thrill seeking** peaks during adolescence. Some of this is explained by the underdevelopment of the part of the brain that determines good judgment and overdevelopment of the part that seeks rewards. But risk taking also helps us to set boundaries and know our limits as in the adage, “Good judgment comes from experience, and experience comes from bad judgment”.
- **Excitement, novelty, risk, the company of peers.** These traits [defining adolescence] make us more adaptive, both as individuals and as a species. Sometimes they all combine to have horrific results such as drug overdoses or car accidents. The uniquely human development of our brain may be what helps us to move away from our parents and family and into new adult environments.