Counselors Corner

A place to educate, inspire, and nurture our growth as parents and educators.

Understanding the Teenage Brain

Do you ever find yourself smacking your head exclaiming “What was (insert your teens name here) thinking?” “How could they make such an impulsive behavior choice?!?”

If you answered “yes,” you are likely part of a large community of people who struggle to understand the teenage brain. As a co-worker of mine once said, “You know your job is difficult if success depends on the fluctuations of a teenage brain.” This could apply to parents, teachers, coaches and counselors!

So what is going on in the teenage brain?

The teenage brain is in a constant state of development. Teen’s impulsive tendencies don’t just come from hormones, it is their changing and developing brain that make us question “What were you thinking (insert your teen’s name here)?!”

A study by Psychologist Deborah Yurgelun-Todd used Functional Magnetic Resonance Imaging (FMRI) to scan the brains of teenagers and see what areas are more impaired during adolescence. She found:

- Frontal lobe- is restructured in the teenage years and is responsible for self-control, judgment, and emotional regulation
- Corpus Callosum- does not reach full maturity until ones early 20’s and is responsible for intelligence, consciousness and self-awareness
- Parietal Lobes- immature until around age 16; responsible for integrating auditory, visual, and tactile signals
- Temporal lobes- still developing after age 16; is responsible for emotional maturity, reading others behavior and rational thought.

The prefrontal cortex acts as the CEO of the brain. It controls planning, working memory, organization, strategizing, paying attention, remembering details, and modulating mood. These are known as the “Executive Functions” and are among the

last pieces of the teen brain to fully mature. Different patterns of weakness in executive functioning are almost always seen in the learning profiles of individuals who have specific learning differences or ADHD.

Adolescent brain development can be divided into three processes: proliferation (rapid growth of brain matter and the formation of new connections within the brain), pruning (cutting away of unused or unimportant tissue connections) and myelination (insulating of brain pathways to make them faster and more stable.)

Proliferation: Grey matter is where all the thinking happens, the teens "processing center." Grey matter grows quickly during childhood but slows down upon adolescence. It peeks around 11-13 years old and then grey matter growth begins to decline.

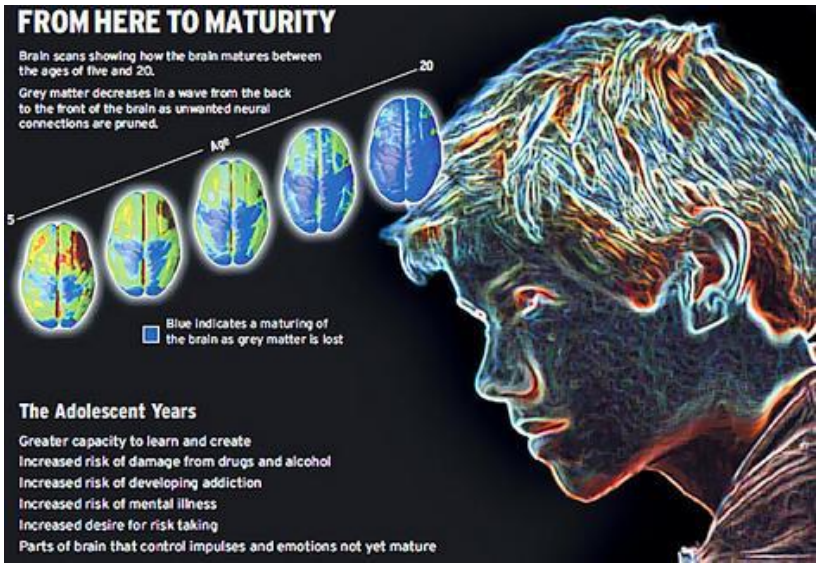
Pruning: The brain matures in a back-to-front pattern. The frontal pattern & temporal lobes are the last to mature. Remember: the frontal lobe is the home of planning, organization, judgment, impulse control and reasoning!

Myelination: Development of white matter that contains long axons. These act like a superhighway transporting information to different parts of the teen brain.

Recent studies report that maturation of the brain continues until the age of 25-30 years old! Harvard researchers and physicians Dr. David K. Urion and Dr. Frances E. Jensen report **"The brain grows and continually changes in young people, it is only about 80 percent developed in adolescents. The last section to connect is the frontal lobe, responsible for cognitive processes such as reasoning, planning, and judgment. Normally this mental merger is not completed until sometime between 25-30 years old."**

The Bottom Line

What does all this mean?



Due to fast-growing synapses, pruning and sections of the brain that remain unconnected, teens are prone to impulsive behavior and defiance; not because they want to make bad decisions, but often because they genuinely cannot think before they act. As the prefrontal cortex matures, teenagers can reason better, develop more control over impulses and make judgments better.

As adults, we need to understand that our teens brains are still developing and changing. Teenagers need the influence, patience, support and guidance of the adults in their lives. They need reminders of possible consequences to their actions and direction toward reduced risks. As scary as it can be, teens need appropriate amounts of freedom, autonomy and responsibility to encourage healthy brain development. Hopefully, as adults, we can provide teachable moments to strengthen our teens prefrontal cortex, executive functioning and overall brain development.

As always, I welcome your feedback and questions.