Adolescent Brain Development Quiz
Please identify these statements as either True or False

_____ 1. We often refer to teenagers as "young adults" because their brain development gives them complete adult skills, although they lack the experience of older adults.

_____ 2. The teenage brain has less matter in the areas that control planning and problem solving than does the adult brain. That's the reason teenagers make bad choices.

_____ 3. Teenagers stay up late because they require less sleep than adults.

_____ 4. The reason many teenagers seem emotionally reactive is that they respond to subtle cues that adults miss.

_____ 5. Teenagers should not blame their inappropriate behavior on "raging hormones."

_____ 6. The teenage brain develops in a way that promotes impulsive and risk-taking activities.

_____ 7. Teenagers are more at risk for drug addiction than adults.

_____ 8. Adolescents often drink more than adults because they get less sleepy from alcohol, but they also typically get more buzzed.

_____ 9. Parents don't have much influence on teenagers because their brain development makes them more sensitive to social cues from their peers.

_____ 10. You have the brain you are born with, and there's not much you can do about it.

Reference:
Answers to the Adolescent Brain Development Quiz

1) False. From the standpoint of brain development, a "young adult" brain is that of at 25-year-old. Through the teenage years and into the early 20s, the brain is still getting organized. Some areas are growing in size, some areas are pruning unused connections, and connections are being strengthened between many areas. Still, a surprising number of cognitive functions are similar in adolescents and adults.

2) False. The final maturation process in the adolescent brain involves the "pruning" of nerve cell material, or "grey matter," rather than adding more. New connections are being made, but circuits that are unused also are being cut out. As adolescents approach adulthood, the active connections are insulated with myelin, which helps information flow more quickly and efficiently among regions of the brain. It's like having a computer that does massive parallel processing, rather than a single switch.

3) False. Adolescents require more sleep than adults—likely about nine hours—and there is a shift in the onset of sleep to later hours, accompanied by later waking. This is well established by research, but we have not discovered the biological mechanisms that underlie these differences.

4) False. Brain imaging studies show that teenagers have less capacity to recognize anger in facial images than adults. That suggests that brain areas important for the processing of subtle changes in facial expressions are still developing through adolescence. Teenagers also may be more emotional because the parts of their brains that control social interactions develop earlier than the parts that censor overreactions.

5) True. Puberty usually begins before the teenage years, with hormonal changes peaking at ages 12 to 15. Hormones then even out, reaching adult levels by age 18. Instead of hormones, teenagers can blame their behavior on the fact that they have a developing brain that is not yet capable of full regulation of behavior.

6) True. The brain circuits that lead humans to expect good things to happen develop earlier than the circuits that allow people to anticipate the consequences of their actions. For example teenagers take greater (and inappropriate) risks in gambling experiments than adults do.

7) True. Studies of human behavior show that the probability of becoming "hooked" on something is greater during adolescence. Animal studies suggest that the brain's positive reaction to drugs may be greater in adolescence, while at the same time negative effects hold less sway.

8) True. Animal research shows that alcohol inhibits the firing of nerve cells less in adolescents than in adults, and thus they become less sleepy. But the effects that produce the buzz may be greater in adolescents than adults. So, there's a reason why older people say, "I can't drink like I used to."

9) False. While it's true that teenagers take more risks in experiments when they're with other teens than when they're alone, a large body of research shows that parents have great influence over teenagers' attitudes and behaviors.

10) False. Animal studies show that the structure of the brain changes with experience. Based on imaging experiments in people, we also know that the ability to use parts of our brain changes over time. People who learn how to play the violin, for instance, have different brain connections than people who don't play that instrument. And as people become expert at playing music (or another such skill), the theory is that their brains become more efficient and use less "bandwidth," so to speak, for that task.