

# *Psych Savvy*

ANCHORAGE SCHOOL DISTRICT PSYCHOLOGY DEPARTMENT

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## **The Teenage Brain**

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Adolescence can be described as the transition from family to the outside world. There are cultural differences in the roles adolescents play in the community and family. Across all cultures adolescents experience dramatic changes in physical, cognitive and moral development. According to Dr. Aaron White, this transition from “family group” to outside world is not unique to humans but takes place in the animal world too.

There is strong research emerging about how changes to the brain during adolescence influence the typical adolescent behaviors of moodiness and recklessness. The brain has been found to make major changes between the ages of 10 -20. Many of these changes take place in the frontal lobes, the area of the brain responsible for planning, organization and self-regulation. The ability to assess the level of danger or risk in activities appears to diminish during adolescence, which sometimes places teens in dangerous situations.

Another theory on adolescent risk taking suggests that the reward center (sensation of pleasure) of the brain experiences a dip in activity. This dip might explain the transition from happy child to moody adolescent. The subconscious drive to activate the reward results in increased risk taking. To satisfy this need for risk taking, Dr. Aaron White advocates for communities to provide healthy parameters to satisfy the need for risk taking that reduces experimentation with drugs and alcohol. For example, skate parks may be a solution that addresses this need. Creative outlets such as art and music may be another option.

What are the advantages and potential pitfalls of this re-wiring in the brain? The habits that teens form now can become lifelong habits in adulthood. Marketing science shows that if brand preference is established in our youngsters, these preferences solidify into brand loyalty when teens become adults. These preferences remain strong whether talking about toothpaste or fast food.

The habits and values created in childhood will drive adult behavior. You can influence your child’s preference for physical activity vs. a “couch potato” by engaging in healthy, fun exercise during childhood and early adolescence. The same is true for establishing healthy eating habits during these critical years.

Increased brain cell growth is associated with happy experiences and physical activity. Conversely, sedentary behavior and high levels of stress are associated with decreased rates of cell growth in the brain. Some teens report very high levels of stress due to the pressures of over scheduling their schoolwork, extra-curricular activities and employment. It is important to help your teen make choices, remembering that activities emphasized now will shape choices in adulthood. If your priority is educational attainment, which certainly influences future career options) then education should be the higher priority in your child's life.

The adolescent brain is very susceptible to the effects of alcohol and nicotine. We have learned that drinking during pregnancy can damage the developing brain of the fetus. Now, there is concern that drinking during adolescence can damage the brain as it once more goes through a growth spurt. In families with a history of alcohol dependence, there is a 50% chance of adult alcohol dependency when a teen begins drinking at age 14, and only a 15% chance of dependence if the teen waits until age 21 to begin drinking. At these same ages in families without a history of dependency on alcohol or substance abuse, the probability of addiction is 30% at age 14 and as low as 7% at age 21.

Nicotine affects the adolescent brain more dramatically than it does the adult brain. In a study with rats, the number of nicotine receptors doubled adolescent rat brains when compared to adult rat brains. The presence of these receptors is associated with nicotine addiction. Nicotine also depresses the production of chemicals in the brain that are associated with positive mood. There is an increased chance of depression when smoking begins early in life.

There are obvious steps one can take to enhance protective factors for our youth. The earlier these protective factors are established, the better. There is a great deal of research, and a previous *Psych Savvy* about the Assets model. It is essential for *parents* and other influential adults to talk to kids about the dangers of tobacco and alcohol. A key predictor in whether or not a teen decides to drink or smoke is the knowing that parents will be disappointed in them for doing so. What do we want for our youth? If we want to promote healthy lifestyles, then the adults surrounding kids do that best by living a healthy life themselves.

Teens naturally seek self-determination. Adults must offer them the best tools for making positive choices. Talk with your teen. Give them honest, accurate information, and tell them they have the power to shape their own brain development. Teens face hard choices but they are choices. Let them know they have the power to shape their own brain development. Let them know that the habits they form now will be very hard to break in adulthood. Now is the time for them to make choices about their future with respect to so many aspects of their lives. The relationships they are forming with friends are critical. Are these relationships healthy or abusive? Are they choosing good nutrition or substance abuse? Are they active or sedentary?

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