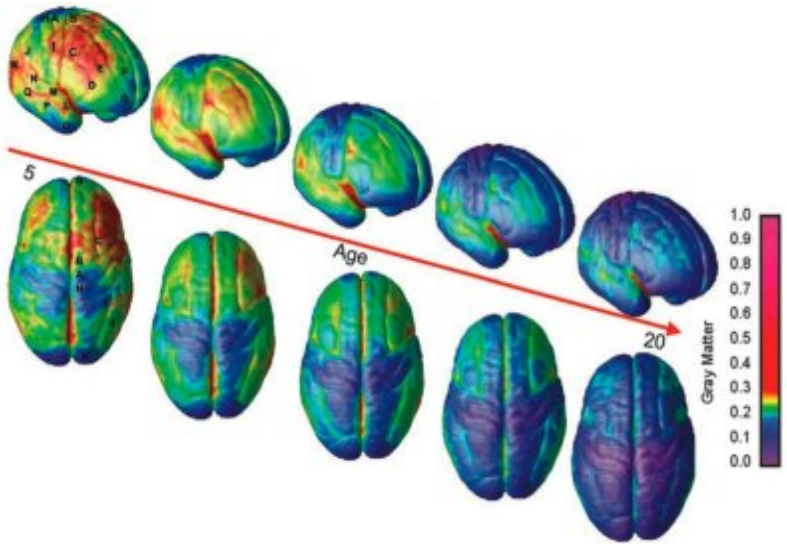
Welcome to Parent Cafe "Prom and Beyond”

The Teen Brain and Alcohol

The matter of Grey and White



Grey matter: consists of neurons, the brain cells that are building blocks of the brain

White matter: axons, connections that form between grey matter, helping to move information from one area of the brain to the next

Grey matter-mostly finished by age 6

White matter-wiring between brain cells-develops well into the 20s

Last area of white matter hooked up is prefrontal cortex-controls insight, judgment, self-awareness and empathy-"executive functions".

- Myelination-white matter connection insulated so signals move faster between brain cells.
- Pruning- period when brain sheds built up grey matter to make room for more white matter; "Use it or lose it"

The Effects of Alcohol on the Teen Brain

- The *pre-frontal cortex* is responsible for planning, decision making, good judgement and impulse control. Drinking during adolescence may cause damage that may be long term and irreversible.
- The *Hippocampus* (involved in memory and learning) suffers worst alcohol-related brain damage in teens. Drinking more and for longer>smaller hippocampus. Impairs more in youth than adults. Frequent drinkers may never be able to catch up in adulthood, since areas for restoring new information are inhibited.
- *White matter-* Alcohol suppresses brain activity>prevents teen brain from developing necessary white matter. Impaired white matter can negatively affect thinking and memory skills.

*The Brain's Hippocampus (responsible for learning and memory) can be 10% smaller in underage drinkers.

Addiction

- High time for learning-right or wrong things-**addiction**

How addiction works:

- Alcohol hijacks the pleasure reward system:

Brain rewards positive actions with feelings of pleasure>repeat actions>remember feel good neurotransmitters like dopamine connecting the pleasure to what we enjoyed.

Alcohol hijacks brain's pleasure reward system by getting these same feelings from alcohol-instead of an actual experience.

Teen continues to drink, brain changes and adapts and need more alcohol to create same amount of pleasure>addiction

Alcohol can also damage the brains ability to get pleasure from normal healthy things leaving the person not feeling the same pleasure form things previously enjoyed.

- Substance abuse-increases **mental illness**

The Facts

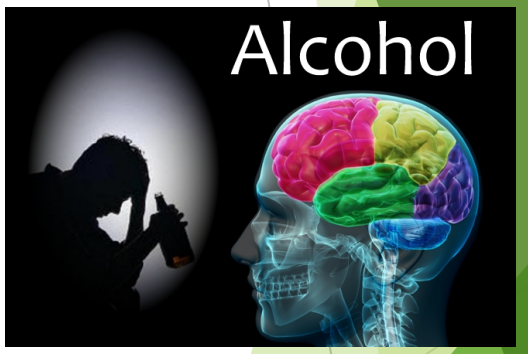
- ALCOHOL IS A DRUG!!!
- Alcohol affects the developing teen brain differently than an adult brain. Alcohol can damage the teen's brain wiring-essential to becoming a mature, thoughtful, responsible adult.
- Alcohol may impair memory, learning, decision-making and impulse control
- It increases the risk of addiction-teens who start drinking before age 15 are five times to become addicted than those who wait until adulthood.
- May cause young people to develop social problems, have poor judgement, get into trouble, do poorly in academics and experience failure in achieving life time goals
- Parents underestimate the extent of teen drinking and its consequences

*Parental disapproval of underage drinking is the key reason children choose not to drink.

*Most Parents talk to their kids about drinking about two years too late. Age 8 is not to early.

And There's More…

- Teens are more likely than adults to consume too much alcohol over short periods of time-binge drinking.
- Reasons teens drink: low self-esteem, think they'll feel happier, impulsive (lack of a mature pre-frontal cortex and basing emotional decisions more on the emotional center, amygdala), new experience, peer pressure.
- Most drugs have predictable receptors in the brain they will use. Alcohol doesn't have a specific receptor-it selects receptors at randomly affecting everyone differently.
- Alcohol reduces serotonin in the brain which helps keep peace. Serotonin also assists in learning and problem solving and our sense of harmony.
- Short term or moderate drinking can impair learning and memory far more in youth than adults. Adolescents need only drink half as much as adults to suffer the same negative effects.
- Research-hippocampal cells less responsive to neurotransmitter GABBA which helps with calmness and sleep. Teens can drink far more than adults before they get sleepy enough to stop.



Resources

1. ParentsEmpowered.org: *Underage Drinking*, October 10, 2014.
2. https://www.sciencenewsforstudents.org/article/alcohol-can-rewire-teenage-brain: Tara Haelle, October 5, 2015.
3. http://www.nytimes.com/2006/07/04/health/04teen.html: *The Grim Neurology of Teen Drinking*, Katy butler, July 4, 2006.
4. http://darecasa.org/casa/?page_id=225: Dare Coalition Against Substance Abuse-*Alcohol and the Teen Brain*.
5. *Inside your Teenager's Scary Brain*, Tamsin McMahon, January 4, 2015