

# What You Can Do

This is a time of great changes for your teen, and as a parent you can help make the most of it. Embrace the changes they are going through, and help them find safe and healthy forms of risk taking so they can build confidence and explore the world. Talk with your teens about alcohol and other drugs, and how you feel about them. Remember that during this time of brain development, parents are a powerful influence and can help guide their youth.

Find out *More*  
*Do More*

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**Sources: 1:** American Medical Association Fact Sheet: Effects of Alcohol on Brains of Adolescents Copyright 1995-2004 American Medical Association

**2:** Brown SA, Tapert SF, Granholm E, Delis DC (2000). Neurocognitive Functioning of Adolescents: Effects of Protracted Alcohol Use. *Alcoholism: Clinical and Experimental Research*. 24(2): 164-171.

**3:** Pyapali GK, Turner DA, Wilson WA, and Swartzwelder, SH (1999). Age and dosedependent effects of ethanol on the induction of hippocampal long-term potentiation. *Alcohol*. 19(2): 107-11.

**4:** DeBillis MD, et al (2000). Hippocampal volume in adolescent-onset alcohol use disorders. *American Journal of Psychiatry*. 157(5): 737-744.

**5:** Hingson & Kenkel, 2004. Social, health, and economic consequences of underage drinking. In *Reducing Undeage Drinking: A Collective Responsibility*, Background Papers.

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**7:** Grant BE and Dawson DA (1997). Age of onset of alcohol use and association with DSM-IV alcohol abuse and dependence: Results for the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse*. 9: 103 – 10.

**8:** Brown, J. How Alcohol Can Damage a Teen's Developing Brain Causing Brain Impairment and Early Addiction. *Parents Empowered.org*. Eliminating Underage Drinking in Utah

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## Your Teen & Alcohol

# Adolescent Brain Development



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# Alcohol & Your Teen's Brain

The brain goes through dynamic changes at adolescence, and alcohol can seriously damage long and short-term growth processes. Alcohol impairs the brain's ability to process information, form conclusions, and solve problems. Here are some of the reasons why underage alcohol use is bad for a developing brain.

## Did You Know?

- Frontal lobe development and the refinement of pathways and connections continue until age 16, and a high rate of energy is used until age 20 as the brain is maturing.<sup>1</sup>
- Damage to the brain from alcohol use can be long term and irreversible.<sup>2</sup>
- Adolescent drinkers scored worse than non-users on vocabulary, general information, memory, memory retrieval and at least three other tests.<sup>1</sup>
- Teen drinkers perform worse in school, are more likely to fall behind, and have an increased risk of social problems, depression, suicidal thoughts and violence.<sup>1</sup>
- The learning and memory centers of the adolescent brain are twice as vulnerable to alcohol as an adult brain.<sup>3</sup>
- Even minor alcohol use decreases verbal ability in teens by as much as 10%.<sup>4</sup>

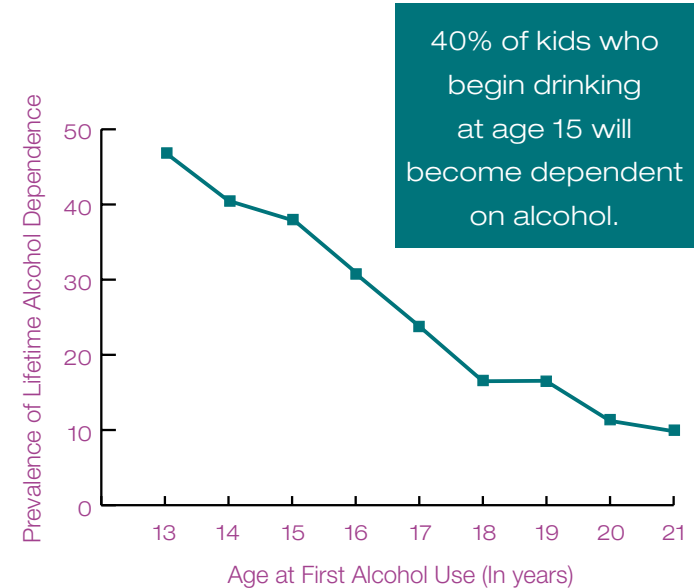
## Other Risks of Underage Drinking

Alcohol-related injuries are the leading cause of death and disability among teenagers.

While one-third of youth alcohol deaths involve vehicle crashes, two-thirds involve homicides, suicides, alcohol poisoning, and unintentional consequences of underage drinking.<sup>5</sup>

Alcohol has also been linked strongly to teenage depression and plays a significant role in suicide.<sup>6</sup>

Adolescents who drink before age 15 are four times more likely to develop alcohol dependence than those who begin drinking at age 21.<sup>7</sup>



Alcohol acts almost like a computer virus in a teen brain by:<sup>8</sup>

- Slowing or shutting down brain activity
- Damaging neuro-connections
- Negatively altering the brain's pleasure-reward circuitry
- Decreasing the ability to learn
- Hindering brain wiring that teens need to become a responsible, thoughtful adult