



Alcohol and the Teen Brain

Wednesday, April 29th, 2009

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“And one important difference we found...was that the kids with the heavy drinking patterns were not able to retain as much information as the kids who were non-drinkers.”

– Susan Tapert, Ph.D., clinical psychologist

16-year-old Veronica Dyer is taking part in a long-term study. The National Institutes of Health is examining the effects of alcohol on the teenage brain.

“And one important difference we found...was that the kids with the heavy drinking patterns were not able to retain as much information as the kids who were non-drinkers,” says Susan Tapert, Ph.D., a clinical psychologist involved in the study.

“The subject on the left is a normal, healthy 15-year-old boy,” says Tapert, as she looks at brain images, “and the subject on the right is a 15-year-old boy who is actually a very heavy drinker. You can see that this is a really important area of the brain for remembering locations of things, and over here – nothing. [The heavy drinker] is not using these important brain areas to do this task, and as a result he actually didn’t perform as well on the task.”

Teens who drink twice a week consistently scored an average of *ten percent lower* on short-term memory tests, compared to non-drinkers.

In other words, says Tapert, “the heavy drinker is more likely to get a B, whereas the non-drinker would be able to get an A. So it’s kind of that amount of a difference.”

16-year-old K.T. Taylor says she’s been drinking heavily for four years. Now in rehab, Taylor says the alcohol has affected her memory.

“Yeah, my memory changed a lot,” she says. “I can’t remember anything anymore. I still do good on my tests – it’s just more effort than I used to have to put into it.”

Has K.T. suffered any long-term damage from drinking? No one knows. But Veronica isn’t taking that risk.

“I personally have never drunken even an entire drink of alcohol,” she says. “A lot of my friends have and I have seen how it affected them. They’re slower in school and that’s all they think about doing. And they become addicted to it in a way and I don’t want to be into that, so I don’t do it.”

Tips for Parents

Research shows that adolescents may be more vulnerable to brain damage from excessive drinking than older drinkers. Alcohol impairs brain activity in the receptors responsible for memory and learning, and young people who binge drink could be facing serious brain damage today and increased memory loss in years to come. If one begins drinking at an early age, he/she is more likely to face alcohol addiction. Consider the following ...

- Imaging studies have revealed a connection between heavy drinking and physical brain damage.
- Neither chronic liver disease nor alcohol-induced dementia, the most common symptoms of severe alcoholism, need be present for alcohol-induced, physical brain damage to occur.
- Alcohol-induced brain damage usually includes extensive shrinkage in the cortex of the frontal lobe, which is the site of higher intellectual functions.
- Shrinkage has also been observed in deeper brain regions, including the cerebellum, which helps regulate coordination and balance, and brain structures associated with memory.
- Alcohol abstinence has shown positive results. Even three to four weeks without alcohol can reverse effects on memory loss and problem-solving skills.

Adolescents have a better chance of recovery because they have greater powers of recuperation. If you suspect your child has alcohol-related brain damage, it is imperative to have him or her assessed by a medical doctor or psychologist. Treatment depends on the individual and the type of brain damage sustained. People with impaired brain function can be helped. Often it is necessary to reduce the demands placed on the patient. Also, a predictable routine covering all daily activities can help. Consider the following points when easing your child's routine ...

- Simplify information. Present one idea at a time.
- Tackle one problem at a time.
- Allow your child to progress at his or her own pace.
- Minimize distractions.
- Avoid stressful situations.
- Structure a schedule with frequent breaks and rest periods.
- Consider joining an alcoholism support group.

References

- Alcoholism Home Page
- Better Health Channel
- National Youth Violence Prevention Center
- Psychological Assessment **R**esearch and Treatment **S**ervices
- Substance Abuse and Mental Health Administration

