

Brain differences seen in teenage heavy drinkers

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Researchers also spot genetic mutation linked to impulsiveness.

(HealthDay)—Teens who drink heavily appear to have significant abnormalities in brain development, a new study finds.

Heavy drinking by teens may also be associated with a [gene mutation](#) linked to impulsiveness, according to another new study.

The studies, published in the *American Journal of Psychiatry*, were scheduled for presentation Monday at the annual meeting of the American Psychiatric Association, in Toronto. Research presented at meetings is considered preliminary until published in a peer-reviewed journal.

The brain regions examined in these studies play a critical role in the addiction cycle of [binge drinking](#) and preoccupation with drinking, George Koob, director of the U.S. National Institute on Alcohol Abuse

and Alcoholism, said in an association news release.

In one study, brain scans of participants ages 12 to 24 found differences in [brain development](#) between [heavy-drinking](#) teens and those who didn't drink. Heavy drinking ranged from having four drinks per occasion at least once a month to one or two drinks at least eight times per month.

Compared to non-drinking teens, the heavy drinkers had accelerated gray matter decline and smaller increases of white matter in the brain. The findings may help explain why heavy-drinking teens decline in school performance, said the researchers at the University of California, San Diego, and the Stanford Research Institute.

The other study included identical twin pairs in which one twin had [drinking problems](#) at ages 18 and 24 and the other twin did not. The researchers found that twins with drinking problems had altered DNA in a gene that plays a role in impulsiveness, which scientists labeled the PPMG1 gene.

The investigators then looked at 14-year-olds and found that similar changes in the PPMG1 gene were associated with higher impulsivity at age 14 and increased drinking over the next two years. Both impulsiveness and increased drinking at an early age are risk factors for drinking problems later in life.

"It is possible that such [genetic] changes, by increasing impulsivity, predispose adolescents to engage in [excessive drinking](#) and that the alterations in brain circuitry that follow excessive drinking, by disrupting executive function, make it harder to stop," Koob wrote in an accompanying editorial.

More information: The U.S. Centers for Disease Control and Prevention has more about [underage drinking](#).

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