

Excessive alcohol when you're young could have lasting impacts on your brain

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(Medical Xpress)—Alcohol misuse in young people causes significant changes in their brain function and structure. This and other findings were recently reviewed by Dr Daniel Hermens from the University of Sydney's [Brain and Mind Research Institute](#) in the journal *Cortex*.

"Young people are particularly vulnerable to the damaging effects of [alcohol misuse](#)," said Dr Hermens.

Most people have their first [alcoholic drink](#) during adolescence and while they drink less frequently than adults, they tend to drink more on each occasion - binge drinking.

The early functional signs of brain damage from alcohol misuse are visual, learning, memory and executive function impairments. These functions are controlled by the hippocampus and frontal structures of the brain, which are not fully mature until around 25 years of age.

Structural signs of alcohol misuse include shrinking of the brain and significant changes to [white matter](#).

In his review, Dr Hermens notes that changes in a young person's brain caused by alcohol misuse could either represent a [predisposition](#) (genetic or environmental) to alcohol misuse, or a marker for future risk of ongoing misuse. Whichever it is, there is no doubt that the more frequent the alcohol misuse, the greater the damage and the less likely the brain is to recover from that damage.

"When the toxicity of alcohol stops your brain from laying down [new memories](#), you experience a blackout," said Dr Hermens. Young people who [binge drink](#) may only drink once a week, but on a massive night out they may have three to four blackouts, which begins to cause serious damage to their brain.

One of the best predictors of a person having problems with alcohol is their earliest age of first use. But changing the [legal drinking age](#) is not the answer. In Australia the legal drinking age is 18, three years earlier than in the US. Despite the difference in legal drinking age, the age of first use is the same between the two countries.

Another key factor affecting young people who drink is mental health, "poor mental health more than doubles a young person's risk of alcohol and other substance misuse" says Dr Hermens.

The solution lies in education, treatment and prevention. Dr Hermens and his team have been working with NSW Health to prepare a set of guidelines for health carers to identify and respond to early stages of brain impairment in young people resulting from alcohol misuse. They are currently working on a set of educational charts that inform young people of the risks of irresponsible drinking.

It may be possible to use cognitive remediation to change the drinking habits of young drinkers and prevent relapse. At the same time, vitamin supplements or other medicines may effectively treat some of the structural changes, and it may be possible to develop protective agents that can prevent young brains from the damaging [effects of alcohol](#).

"More work needs to be done in this area. Excessive alcohol use accounts for 4 percent of the global burden of disease. We would save a lot of money and improve the quality of life for millions of people if we could prevent the mental and physical problems associated with alcohol misuse" said Dr Hermens.

Provided by University of Sydney

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