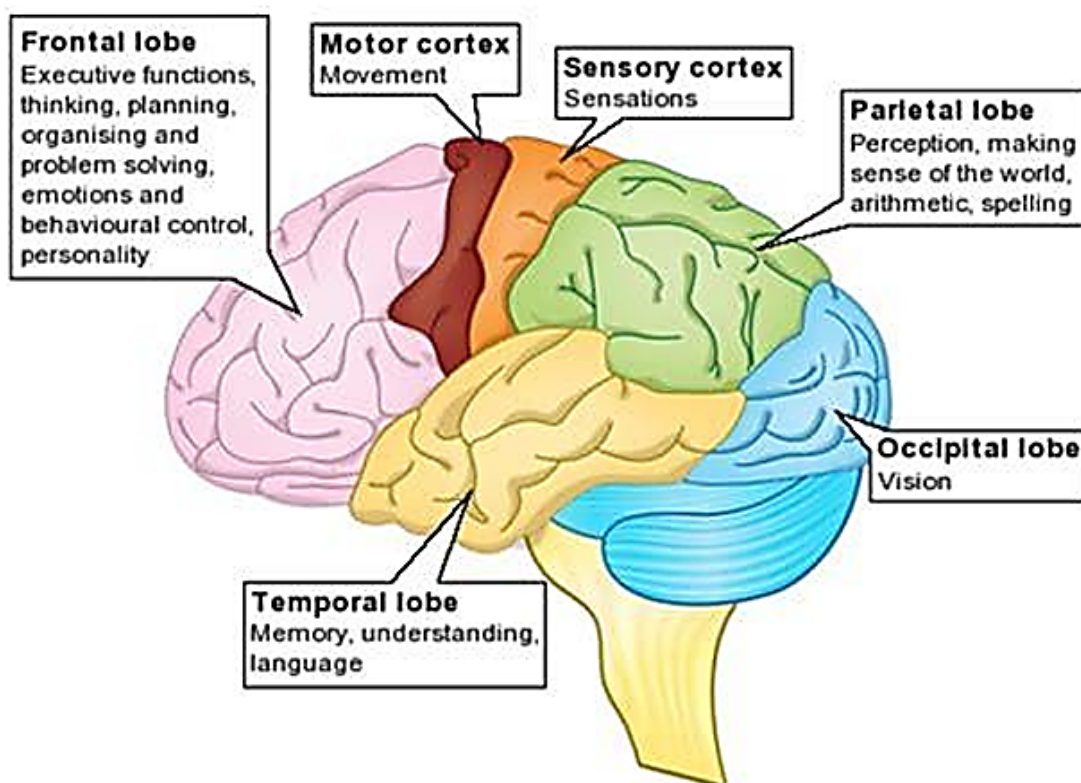


## Alcohol, teenagers and brain development

The sphere of neuroscience and our understanding of brain development has increased exponentially over recent years. The new information coming from researchers around the world have forced educators and parents to reexamine commonly held beliefs about the way we parent and educate our children.

One area that is not to be underestimated is the impact of alcohol on developing teenage brains.

### *Teenage Brain Development*



Teenagers are motivated to explore and take risks. These learning experiences, complemented by the teenage brain's increased ability to readily change in response to experiences (also known as *brain plasticity*), are key to developing the skills and knowledge to become independent.

Although this increase in brain plasticity and risk-taking can provide incredible opportunities for learning and personal growth, it also makes teens more vulnerable to unsafe behaviours and poor decisions. Alcohol use can exacerbate this and lead to dangerous situations. Those areas of the brain impacted by alcohol are highlighted in the boxes above; of those, most heavily impacted are the temporal lobe and frontal lobe. This means that memory, learning, emotions and language skills can be damaged by alcohol consumption in a developing brain.

## ***Drinking Levels Defined***

### **Binge Drinking**

The NHS defines binge drinking as, 'drinking lots of alcohol in a short space of time or drinking to get drunk'. For men, that would be consuming more than 8 units of alcohol in a single session, for women, 6 units. The number of units for teenagers would be less. When we consider that there are roughly 2 units in a pint of beer or a glass of wine, it doesn't take much alcohol to be damaging to teenagers. Dangers of binge-drinking include:

- Accidents and falls
- Aggression
- Black outs
- Memory loss and low mood

### **Heavy drinking**

Heavy drinking is defined as 5 or more alcoholic drinks on any day/15 or more in a week for men, and for women 4 or more in a day/8 or more a week. Researchers have found that heavy drinking changes the normal developmental patterns in the connections between and within brain regions and weakens connections between brain areas that regulate emotional and cognitive functioning.

### ***The European model?***

Many parents believe that slow introduction to alcohol in a controlled context teaches young people to drink safely and reduce binge-drinking later on, whereas restriction leads it to become a tempting "forbidden fruit".

This is a myth. Research has shown that the more permissive a parent is with alcohol use, the more likely a child is to have problems with alcohol in later life.

A comprehensive [review](#) suggests that contrary to the forbidden-fruit belief, "parents imposing strict rules related to adolescent alcohol use is overwhelmingly associated with less drinking and fewer alcohol-related risky behaviours".

More and more research suggests that drinking alcohol in adolescence may have significant effects on brain function. The earlier people start drinking alcohol, the more likely they are to experience a measurable impact on cognitive functions, memory, and school performance over time—perhaps even into adulthood.

Delaying alcohol consumption allows for the teenage brain to develop more, leading to more responsible behaviour relating to both alcohol consumption and risks in general.

## KEY FACTS

- The changes that occur to the brain during the teenage years make young people more vulnerable to drug and alcohol dependence.
- People who first use alcohol before the age of 15 years are five times more likely to abuse alcohol than those who first use it aged 21 years and over.
- This increased use leads to a greater chance of alcohol related problems in later life, including alcohol addiction.
- Recent research suggests that young people under the age of 18 should avoid alcohol for health reasons.
  
- Research shows that a hangover can be just as damaging to the brain as the heavy drinking itself; dehydration impairs memory function and concentration so learning any new information and trying to recall memories would be impaired by a hangover.

## References:

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