

## Alcohol and the Brain

Leading neuroscientist Baroness Susan Greenfield recently presented her theories about how alcohol affects the brain and gives us pleasure. She also explored a few myths and mysteries about the action of alcohol and other drugs on our grey matter.

Alcohol acts in a different way to most drugs, as it affects the transmission of electrical impulses along nerve cells in the brain - and we have all experienced some of the results. Instead, most drugs act instead on the chemical "transmitters" that transmit signals across the gaps or synapses between cells - often by blocking the receptor sites (a specialised molecule which only the transmitter or very similar chemicals can "lock into"). Alcohol is also different in its dosage - it takes around 7000mg of alcohol (about a small glass of wine) to have an effect on consciousness, but only 0.3mg of cannabis for a similar effect. Alcohol is also cleared from the body much more quickly than cannabis - it takes around an hour to clear one unit of alcohol while cannabis can remain in the body for 120 hours (5 days).

Greenfield believes that the effect of alcohol on the brain is linked to consciousness. Her theory is that consciousness is the result of synchronised activity of brain cells which form temporary assemblies of interconnections. The larger these assemblies, the deeper the level of consciousness. Smaller assemblies are associated with lower levels of consciousness, such as in children (as young brains have fewer connections); dream states and even fast paced sports where assemblies are very short-lived. Alcohol may limit the size of these assemblies and cause a more child-like, less conscious state, by damping down nerve signals. Human beings seem to enjoy being in this child-like state where we become passive recipients of our senses. The more we drink the less conscious we become - even to the point of losing consciousness entirely. Everyone reacts slightly differently, as no two people have identical patterns of interconnections between brain cells. In some drinkers, aggression is the result of alcohol consumption, but this is also an aspect of "loss of mind".

Of course, it's difficult to prove any of this in any individual living human brain - at least not yet. What is clear is that we can't just blame it on our genes and we must all take personal responsibility when we chose to drink alcohol - whether it is First Growth Bordeaux or Aussie Chardie.

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