Sobering effect of the love hormone (w/ Video)

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Oxytocin, sometimes referred to as the 'love' or 'cuddle' hormone, has a legendary status in popular culture due to its vital role in social and sexual behaviour and long-term bonding.

Now researchers from the University of Sydney and the University of Regensburg have discovered it also has a remarkable influence on the intoxicating effect of alcohol, which they report in the scientific journal *Proceedings of the National Academy of Sciences* on 24 February.

When the researchers infused oxytocin into the brains of rats which were then given alcohol it prevented the drunken lack of coordination caused by the alcohol.

"In the rat equivalent of a sobriety test, the rats given alcohol and oxytocin passed with flying colours, while those given alcohol without oxytocin were seriously impaired," Dr Bowen said.

The researchers demonstrated that oxytocin prevents alcohol from accessing specific sites in the brain that cause alcohol's intoxicating effects, sites known as delta-subunit GABA-A receptors.

"Alcohol impairs your coordination by inhibiting the activity of brain regions that provide fine motor control. Oxytocin prevents this effect to the point where we can't tell from their behaviour that the rats are actually drunk. It's a truly remarkable effect," Dr Bowen said.

This 'sobering-up' effect of oxytocin has yet to be shown in humans but the researchers plan to conduct these studies in the near future.

"The first step will be to ensure we have a method of drug delivery for humans that allows sufficient amounts of oxytocin to reach the brain. If we can do that, we suspect that oxytocin could also leave speech and cognition much less impaired after relatively high levels of alcohol consumption," Dr Bowen said.

It's worth noting that oxytocin can't save you from being arrested while driving home from the pub.

"While oxytocin might reduce your level of intoxication, it won't actually change your blood alcohol level," Dr Bowen said. "This is because the oxytocin is preventing the alcohol from accessing the sites in the brain that make you intoxicated, it is not causing the alcohol to leave your system any faster".

Some people might worry a drug which decreases your level of intoxication could encourage you to drink more. As it turns out, separate experiments conducted by the researchers and other groups have shown that taking oxytocin actually reduces alcohol consumption and craving in both rats and humans.

"We believe that the effects of oxytocin on alcohol consumption and craving act through a similar mechanism in the brain to the one identified in our research," said Dr Bowen.

Their findings could see the development of new oxytocin-based treatments for alcohol-use disorders that target this mechanism.

More information: *PNAS* www.pnas.org/cgi/doi/10.1073/pnas.1416900112

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