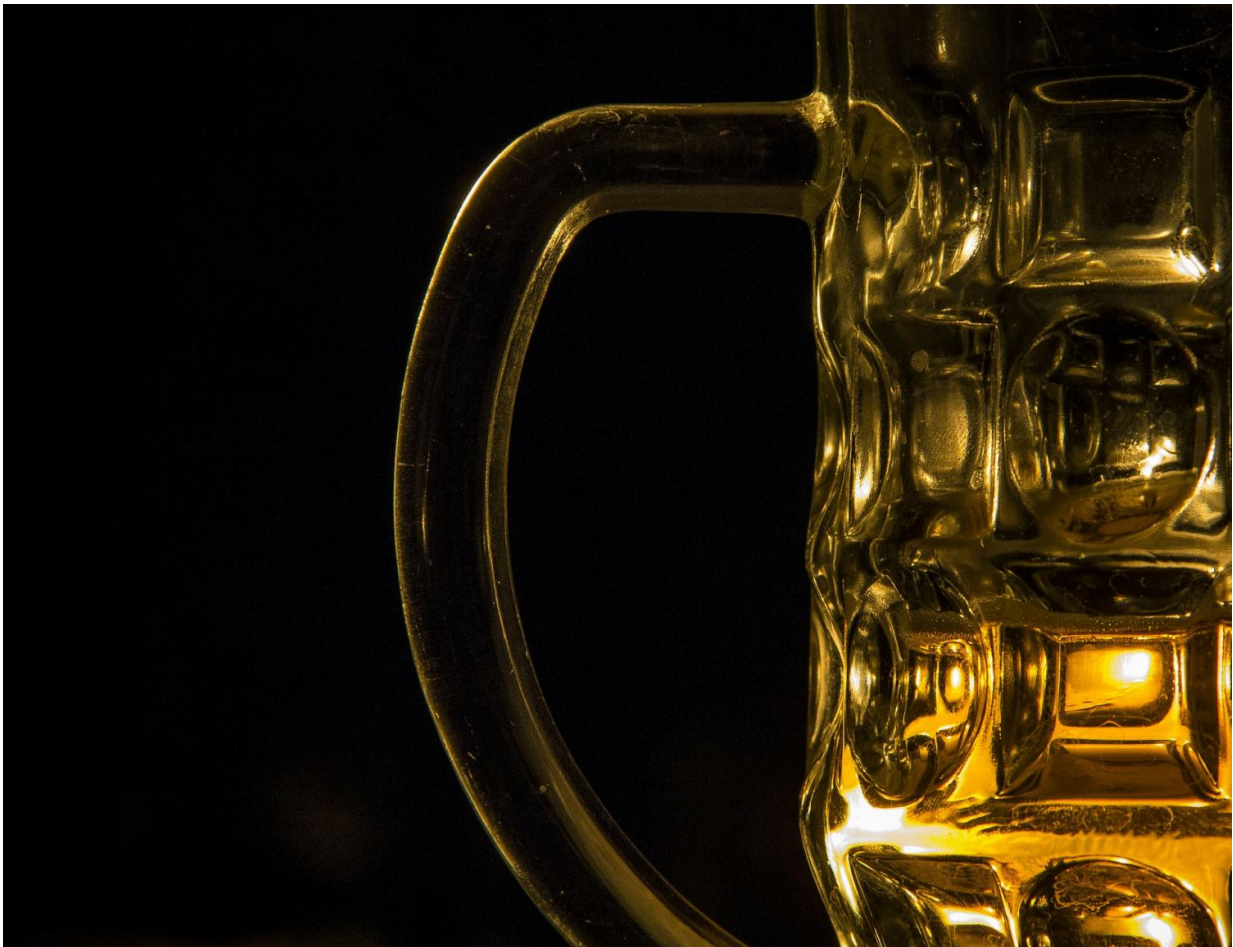


# When male voles drink alcohol, but their partner doesn't, their relationship suffers

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A study of the effect of alcohol on long-term relationships finds that

when a male prairie vole has access to alcohol, but his female partner doesn't, the relationship suffers - similar to what has been observed in human couples. The study, published today in open-access journal *Frontiers in Psychiatry*, also identifies changes in a specific brain region in the male voles. The findings could help researchers find strategies to overcome the negative effects of alcohol on human relationships.

"We know that in humans, heavy drinking is associated with increased separation rates in couples in which one of the partners is a heavy drinker and the other is not, while separation rates don't seem to increase when both partners drink in a similar manner, or don't drink at all," says Andrey Ryabinin, of Oregon Health & Science University and one of the study's authors.

Researchers don't know whether problematic drinking directly contributes to relationships breaking down, or if the unhappiness people experience in a failing relationship drives them to drink. Understanding whether alcohol's effects on the brain directly contribute to relationship breakdown could help researchers to understand and treat problematic human behaviour.

The prairie vole, a small monogamous rodent found in North America, provides a model to study this complex phenomenon. "Not many rodents form long-term social attachments and not many rodents like to drink alcohol," says Ryabinin. "However, prairie voles are unusual as they are socially monogamous and like drinking alcohol, so they are perfect to investigate the role of alcohol in relationships."

Andre Walcott, a graduate student in Ryabinin's laboratory, allowed male and female prairie voles to form social bonds over one week. The researchers then gave the males access to a 10% alcohol solution, while their female partners were allowed only water (discordant drinking) or also had access to alcohol (concordant drinking). In a control group, both

males and females had access to water only.

The researchers then gave each male a choice between huddling up beside his female [partner](#) or a new female. By timing how long the male spent beside each female, the researchers could determine the bond strength between the male and the original female.

The researchers found that the [prairie vole](#) couples behaved like human couples in terms of how alcohol affected their relationships. During the social connection test, males who had drunk alone spent less time with their original female partner, whereas those who had never drunk or those who had drunk alongside their partner huddled with them for longer.

These results indicate that discordant drinking can directly affect prairie voles' relationships. The researchers next investigated whether there were any changes in the brains of the male prairie voles. Sure enough, males who had drunk alone showed changes in a brain region called the periaqueductal grey that might be responsible for these effects.

What does this mean for human couples? "Our results in prairie voles have identified a biological mechanism that could explain the link between discordant drinking and [relationship](#) breakdown, but we will need to do further work to confirm this for humans," says Ryabinin. "In future studies, we might be able to find strategies to overcome the negative effects of [alcohol](#), to improve relationships that are disrupted by problematic [drinking](#)."

**More information:** *Frontiers in Psychiatry*, [DOI: 10.3389/fpsyt.2017.00226](#) , [www.frontiersin.org/articles/10.3389/fpsyt.2017.00226/full](#)

Provided by Frontiers

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