

New research reveals alcohol impairs humans' ability to override their 'autopilot'

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New research from Western University's Brain and Mind Institute (BMI) has revealed that alcohol definitively impairs the human ability to override impulse or snap decisions that are natural responses to rapidly evolving situations.

In the study, published this week in the journal *PLOS ONE*, BMI researchers investigated the age-old question of whether alcohol impairs decision making by asking participants to point toward suddenly appearing visual targets when sober and again, after consuming enough alcohol to raise their [blood levels](#) to the legal limit for driving.

The target predominantly remained stationary, but sometimes it abruptly jumped to a new location. Previous studies have shown that people quickly and accurately self-correct for such target jumps and that an "autopilot"-type mechanism in the brain underlies this rapid and automatic response.

Participants in this study generated similar results both sober and after a few drinks but that all changed dramatically when participants were asked to simply stop their movements when the target jumped. After drinking, participants were often unable to stop and instead corrected for the target jumps, implying that [drinking alcohol](#) had impaired their ability to switch off their autopilot.

Kevin Johnston, the lead author of the paper, explains, "This study shows that although behaviour that's well practiced or automatic is pretty robust to the effects of moderate amounts of [alcohol](#), things really fall apart when you have to override these responses and do something different."

An inability to override automatic behavior after a few drinks are particularly relevant for real-world tasks like driving, where drivers often have to adjust acceleration, steering and braking as a result of road conditions or suddenly appearing obstacles, such as [pedestrians](#) in the roadway.

Johnston teamed with Mel Goodale, Director of Western's Brain and Mind Institute, and Brian Timney, Dean of Western's Faculty of Social Science, to conduct the study, which was supported by the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Alcoholic Beverages Medical Research Foundation (ABMRF).

More information: The paper, titled "Acute Alcohol Consumption Impairs Controlled but Not Automatic Processes in a Psychophysical Pointing Paradigm," can be further explored at

[dx.plos.org/10.1371/journal.pone.0068682](https://doi.org/10.1371/journal.pone.0068682)

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