

Alcohol Hangover Induced Impairment in a Simulated Short Commute to Work Contrasting Next Day Residual Alcohol and Zero Alcohol

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Introduction and Aims:

The impact of alcohol hangover on next day driving has been largely neglected, and the effects on driving performance in a demanding 'commute to work' driving environment have not been assessed by comparing next day residual and zero alcohol groups.

Design and Methods:

Fifty-two license holding participants (Age range 18-25, mixed sex group) underwent a 20 minute drive with speed limit set to 50mph in a mixed urban and rural environment including hazards (e.g. pedestrians stepping into the road), as well as a divided attention task in the STISIM driving simulator, after counterbalanced conditions of hangover and no-hangover. Driving performance, hangover severity, mood (Bond and Lader VAS) and perceived workload (NASA TLX) were assessed.

Results:

Significant findings ($P < 0.05$) for the combined ($N=52$) and separate (residual alcohol $N=26$; BAC 0.046) and zero alcohol $N=26$) groups included increased reaction time in the hangover condition, as well as increased time off road and centre line crossings with greater impairment for the residual alcohol group. Four of 6 subjective workload parameters were increased as was negative mood and hangover symptoms.

Discussion and Conclusions:

Impairment after alcohol hangover has previously been reported for simulated motorway driving but this study investigated more demanding mixed/urban environments in a typical commute to work^{1,2}, and the hangover groups showed a range of impairments despite increased subjective effort when driving in a demanding environment. The slower responses and poorer vehicle control, seen in the residual alcohol group, suggest that though 'street legal' new methods should be developed to detect alcohol hangover.

Implications for Practice or Policy

Alcohol breathalysers do not pick up residual alcohol impairments where breath alcohol may be zero or within legal limits.

Implications for Translational Research

Alcohol breakdown products need to be linked to residual impairment to enable detection.

References

- 1, Robbins C et al 2019 Transportation Research Part F 62, 376-389
2. Verster J and Roth T 2014 Human Psychopharmacology 29, 19-24