

Does sleep restriction make driving with distractions worse? A comparison of listening to the radio, texting, eating and drinking whilst on a short 10 minute drive.

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The negative impact of common driving distracters is recognised, with legal penalties for using a mobile phone and possible convictions for driving without due care when eating and drinking. Whilst the effects of these distracters have been examined after normal sleep there is limited research with restricted sleep. Around half of commute journeys involve drives of 15 minutes or less and therefore a short drive was investigated.

Nineteen student participants, 9 male, aged 18-23 (mean 20 years; mean full driving license period 3.1 years) undertook a series of four 10 minute simulated drives (STISIM: System Technology Inc. USA) separated by breaks under conditions of normal sleep and after 4 hours sleep restriction monitored with actiwatches (CamNTech), and with sleep conditions separated by 2 days, and order of distracters counterbalanced. Compared to the control drive distracters comprised listening to the radio (70dB radio 1 recording), texting a message, eating crisps and drinking bottled water, each with a 10 minute drive. Assessed driving variables included reaction time and incorrect/missed responses to the inbuilt divided attention task (peripheral shape change - diamonds:triangles), and number of collisions.

Significant ($P < 0.05$) findings revealed that overall, sleep restriction impaired performance across assessed driving conditions. Reaction time to the divided attention task increased from 2.4 to 3.5 seconds with sleep restriction, though radio improved reaction time, with significant contrasts between radio and texting, and a trend ($P < 0.06$) for eating and drinking overall. Both distracters were worse after normal sleep, as were missed responses with texting. Whilst sleep restriction exacerbated distracter impairment, some differences between distracters were reduced.

The results of this preliminary study suggest that even with a relatively short commute to work type drive, both texting and eating and drinking impaired performance with sleep restriction further increasing impairment. Drivers should be alerted to these additive impairments.

299 words