Warning signals for drivers who like to listen to music

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A simulator was used to test how background radio affected driver responsiveness.

Listening to the radio can make it hard for drivers to hear the collision avoidance warning signals that are increasingly being introduced into new cars. Oxford University experimental psychologists have analysed how car manufacturers can use multi-sensory signals to warn drivers of an impending front-to-rear end collision more effectively.

Reducing a driver's braking response by 5/10ths of a second helps to cut front-to-rear end collisions, the most common cause of car accidents, by as much as 60 per cent.

'Multi-sensory in-car warning signals for collision avoidance,' published in Human Factors, by Professor Charles Spence and Dr Cristy Ho of the Crossmodal Research Laboratory (CRL) at Oxford University, along

with Dr Nick Reed from the Transport Research Laboratory (TRL), seeks to identify the optimal warning signal to capture a driver's attention.

A recent survey estimates that two thirds of British drivers listen to music or the radio while driving, and young male drivers have been documented listening to their car stereos at up to 130 dB, close to the level where hearing is damaged.

The researchers used a car simulator to assess the effectiveness of unimodal and multi-sensory warning signals against the presence and absence of background radio. Fifteen men aged between 17 to 41 years, all of whom were experienced drivers, drove the simulator while listening to the Chris Moyles Radio 1 Breakfast Show. The radio clip consisted of three songs, random informal conversations among various speakers, and the news and sports report. Three different kinds of warning signal were examined; a car horn, a vibration of the driver's seat-belt, and the simultaneous presentation of both the auditory and tactile cue at the same time.

Multi-sensory warning signals, consisting of the warning sound and the simultaneous vibration of the seatbelt, captured driver attention best, no matter how intently they were listening to the radio.

Professor Spence suggests that this is because 'the human brain has evolved to treat events that happen simultaneously in different senses as being particularly important and hence worthy of attention.' Drivers were able to brake about 6/10ths of a second faster following the multi-sensory warning signal than under conditions where no warning signal had been present.

Source: Oxford University