

# Safer cars through touch, sound and smell

December 2 2005

---



Oxford researchers have found that using smell, touch and sound may make the car of the future safer.

*Picture: Driver's view from a car. Vibrating parts of a driver's body can make them react more quickly to potential dangers when driving.*

Research by Dr Charles Spence and Cristy Ho at the Department of Experimental Psychology has shown that vibrating parts of a driver's body as a warning can make them react more quickly to potential road dangers. They found that such multisensory warning signals were particularly effective if they came from the appropriate direction: for

example, when your seatbelt vibrates your stomach if the car in front suddenly brakes.

Directional auditory warning icons, such as the sound of a car horn, generated by your car and then projected in the direction of the potential road danger were also found to be very effective. Such warning signals not only alert the driver to a potential hazard but also seem to automatically and intuitively direct the driver's attention in the appropriate direction.

In a paper published in *Transportation Research Part F: Traffic Psychology and Behaviour*, the team reported two experiments in which participants were asked to perform attention-demanding driving-like tasks, which involved responding to rapidly-presented visual stimuli. Whilst performing this visual task, they would sometimes feel a vibration on their front or back, at which point they had to check the front windscreen and the rearview mirror, decide if a potential collision was imminent, and brake or accelerate accordingly.

Tactile warnings improved the reaction times of 'drivers' by one to two tenths of a second. That difference could be large enough to reduce the most common type of accident, the front-to-rear-end collision (which accounts for a quarter of car accidents), by as much as 10–15 per cent. These findings have now been replicated in collaboration with Dr Nick Reed at the advanced driving simulator in the National Transport Laboratory in Crowthorne, Berkshire.

Dr Spence's team has also reported recently in *Neuroscience Letters* that peppermint odour (normally referred to as an 'alerting' odour) can be used to improve concentration. It might not be long before cars will be pumping out various different smells in order to wake drivers up as they dose off, or to calm stressed drivers down (using lavender, for instance) to reduce the incidence of road rage.

Source: University of Oxford

Citation: Safer cars through touch, sound and smell (2005, December 2) retrieved 18 April 2024 from <https://phys.org/news/2005-12-safer-cars.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.