

Alarming old and young drivers

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An in-car alarm that sounds when sensors on the vehicle detect an imminent crash could cut crash rates from 1 in 5 to 1 in 10 for drivers over the of 60 suffering tiredness on long journeys, according to a study published in the *International Journal of Human Factors and Ergonomics*.

Psychologist Carryl Baldwin of George Mason University in Fairfax, Virginia, USA, and colleagues there and at the Sentara Norfolk General Sleep Center, emphasize how fatigue poses a persistent threat to transportation safety. Alarms that sound when a vehicle senses an imminent collision or when a driver deviates from their lane have already been tested and shown to work with alert drivers. Baldwin and colleagues wanted to know whether an [alarm](#) would reduce the accident rate in older and younger drivers who were suffering from fatigue.

Two volunteer groups, one aged 18-29 years and the second 65-85 years were each split into two groups, four groups in all. They had each group of volunteer drivers take control of a car simulator for one and a half hours to induce [driver fatigue](#) and assessed this based on faltering lane discipline among the drivers. They were then tested to see how well they would respond when a single [imminent collision](#) event was simulated. Half the [young drivers](#) and half the older drivers were given an audible alarm when the collision was about to occur and the other half of each group, the controls had to try and avoid the collision with no auditory warning.

The team found that almost 18% of the drivers not given an auditory

warning crashed in the simulated collision. However, only about 11% had a collision if the alarm was sounded. Auditory warnings were most effective in the older group with only one driver over the age of 60 being unable to avoid a collision despite hearing the alarm. Disappointingly, the team says, the auditory warning had little impact on [crash rates](#) in drivers under the age of 35. An additional finding, not reported in the paper for statistical reasons is that young female drivers also responded safely when the alarm sound but young males did not.

The team points out that average following distance and speed were fairly constant across the alarm and the control groups for each age range, although the over-60s tended to drive at a much greater following distance than the youngsters. Despite this, no auditory warnings meant even the [older drivers](#), with presumably longer reaction times, than the younger drivers, had approximately the same collision rate.

The team suggests that an in-car [collision](#) alarm could be a useful safety device for vehicles. They also point out that the rate of fatigue-induced accidents in which drivers deviate from their lane or the road entirely might just as readily be reduced if alarms for those situations were part of such a safety device's repertoire too, although the simulations are yet to be done for that type of accident. They do warn that as with all vehicle safety features, they must also be assessed for over-reliance to avoid drivers becoming complacent and ignoring the signs of tiredness.

The team has more recently been testing [drivers'](#) reactions to different types of auditory and multimodal alarms.

More information: Baldwin, C.L., May, J.F. and Parasuraman, R. (2014) 'Auditory forward collision warnings reduce crashes associated with task-induced fatigue in young and older drivers', *Int. J. Human Factors and Ergonomics*, Vol. 3, No. 2, pp.107-121.

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