Road Safety Factsheet

July 2018

Mobile Phones and Driving Factsheet

A substantial body of research[1,2] shows that using a hand-held or hands-free mobile phone while driving is a significant distraction, and substantially increases the risk of the driver crashing.

Drivers who use a mobile phone, whether hand-held or hands-free:

- are much less aware of what's happening on the road around them
- fail to see road signs
- fail to maintain proper lane position and steady speed
- are more likely to 'tailgate' the vehicle in front
- react more slowly, take longer to brake and longer to stop
- are more likely to enter unsafe gaps in traffic and;
- feel more stressed and frustrated.

They are also four times more likely to crash, injuring or killing themselves and other people.

Using a hands-free phone while driving does not significantly reduce the risks. This is because the problems are caused mainly by the mental distraction and divided attention of taking part in a phone conversation at the same time as driving.

The Law

On 1 December 2003, a law, "**The Road Vehicles (Construction and Use) (Amendment) (No. 4) Regulations 2003**", came into force to prohibit drivers using a hand-held mobile phone, or similar device, while driving. It also made it an offence to "cause or permit" a driver to use a hand-held mobile phone while driving, or to use a hand-held mobile phone while supervising a driver who only has a provisional licence.

The penalties were initially a fixed penalty of £30 or a fine of up to £1,000 if the offender goes to court (£2,500 for drivers of goods vehicles or passenger carrying vehicles with nine or more passenger seats) increasing to £100 and three penalty points added to the drivers' licence in February 2007. From 1st March 2017, the penalty increased to a £200 fine and six penalty points added to the drivers' licence.

The definition of a hand-held mobile phone

The Regulation includes any "device, other than a two-way radio, which performs an interactive communication function by transmitting and receiving data".

It states that a "mobile telephone or other device is to be treated as hand-held if it is, or must be, held at some point during the course of making or receiving a call or performing any other "interactive communication function". "Interactive communication function" includes:

(i) sending or receiving oral or written messages;
(ii) sending or receiving facsimile documents;
(iii) sending or receiving still or moving images; and
(iv) providing access to the internet

There are two exemptions:

- 2- way "press to talk" radios, such as used by the emergency services and taxi drivers
- Using a hand-held phone for a genuine emergency call to 999 or 112 if it would be unsafe for the driver to stop.

The Definition of Driving

Under existing law, a person may be regarded as "driving" a vehicle while the engine is running and the vehicle is stationary. The offence applies to all motor vehicles, including motorcycles, but not to pedal cycles.

Hands-Free Mobile Phones

Unfortunately, in RoSPA's view, this law does not ban the use of hands-free mobile phones.

This is despite evidence[3,4] suggesting that increasing the demands on a driver's attention by means of a telephone conversation can impair driving performance, including decreased hazard perception, longer reaction times for 'critical events', poor lane discipline and an increased risk of being involved in a collision.

Driving and conversation are complex, multimodal and attention-demanding tasks, so interference between them is not particularly surprising[4].

A National Safety Council white paper[5] states that drivers using hands-free mobile phones have a tendency to 'look at' but not 'see' objects, with estimates indicating that drivers using a mobile phone look but fail to see up to 50% of the information in their driving environment. This is known as 'inattention blindness'. This means

that although drivers are looking through the windscreen, they do not process everything in the road environment that they must know to effectively monitor their surroundings, identify potential hazards and respond to unexpected situations[6]. Although hands-free phones reduce visual (eyes off the road) and mechanical (hands off the wheel) distraction, they do not reduce cognitive distraction. Most people are able to recognise when they are visually and mechanically distracted, and seek to disengage from these activities as quickly as possible. However, people often do not realise when they are cognitively distracted, such as taking part in a mobile phone conversation, and this risk lasts much longer.

A recent study conducted by Briggs et al (2016)[3], consisting of two experiments, suggested that drivers are particularly distracted by a conversation which encourages them to visualise what they are talking about. Conversations of this type led to 'cognitive tunnelling' and deteriorated driving performance, suggesting that it is the conversation itself that distracts the driver from the driving task. This is because when people are talking about topics that engage 'perceptual systems' (language about visible or audible events) or 'motor systems' (language about performable actions), they may have difficulty perceiving the real world around them or performing the actions involved in driving[4].

In the first experiment, participants viewed films of real driving situations and reacted to hazardous events within them. One group completed the task without distraction, another group were distracted with a statement verification task to induce mental imagery and the final group were distracted with a non-mental imagery inducing statement verification task. The undistracted group detected the most hazards, those distracted by non-imagery inducing statements detected fewer hazards and those distracted by imagery induced statements detected the fewest hazards of all. A similar pattern was found for reaction times to the hazard. This pattern was also found in Bergen et al's (2013) study[4], which indicated that braking reaction times were affected by engaging in conversation, in particular for those distracted by imagery-inducing and motor (visualising actions) statements.

These findings show that performing a secondary task when driving can significantly reduce a driver's ability to react to hazards. When an individual is distracted by imagery inducing conversation, they may fail to detect a hazard, or if they do detect them, take significantly longer to react than an undistracted driver.

In the second experiment, 46 participants were asked to watch films of driving situations and respond to any hazards that appeared in them. Half of the participants also completed a secondary task that required the use of mental imagery. All of the participants had their eye movements tracked while they completed the tasks. Results of the experiment revealed a highly significant difference between those who were undistracted and those who were distracted, suggesting that distraction significantly impaired hazard perception performance. Those who were distracted also made more 'looked but failed to see' errors.

Crucially, the findings of the second experiment indicated that those who were distracted experienced cognitive and visual tunnelling. This was because although those who were distracted were less likely to notice hazards, when they did, they were more likely to notice hazards in the central, rather than the peripheral visual scene. Dual tasking drivers tended to reduce the variance of their fixations, leading them to focus on a small area of the driving scene, directly ahead of them, meaning peripheral areas were largely neglected.

Despite the fact that there is much evidence supporting the idea that phone conversations lead to a deficit in driving performance, it is not known whether conversation results in a disruption to our actual cognitive mechanisms (Cognitive Disruption hypothesis), or just a delay in response due to limited cognitive resources (Cognitive Delay hypothesis). A recent study by Gunnell et al., (2019), asked participants to identify visual stimuli whilst having a conversation across various conditions whilst their response time was being recorded. The study investigated spatial learning and time-based selection. Spatial learning is the part of our memory responsible for navigating through a space, and time-based selection is how we prioritise new information in favour of old information. The study used two cognitive search tasks (mechanisms of our visual system):

- Contextual cueing: this relates to our ability to navigate familiar environments.
- Visual marking: similarly to time-based selection, this is when old, previously viewed stimuli are ignored.

During the study, participants went through a series of phases whilst either conversing (on a hands-free device) or not conversing with an experimenter, whilst looking at and identifying varying visual displays and stimuli. An example of this is how the participants were asked to identify a target (a T shape), but the target was surrounded by distractor items (items that were the incorrect answer – L shapes). Their reaction times were measured during these tasks and a "generalised slowing of responses" was found.

The results from this study support the Cognitive Delay hypothesis – meaning having a phone conversation does not affect the actual ability to drive, but it results in a robust and consistent delay in response times. When the conversation is taking place, it is likely that the individual "switches tasks", reallocating attention between the conversation and the activity they are carrying out. This reallocation of attention is likely what causes a delay in response times.

The average delay in response in the first phase of the experiment was 283ms. At 60mph, this delay would lead to an extra 25ft of travel before a response such as braking occurs, which is dangerous when there is a sudden hazard on the road. As these delays occurred on a hands-free device, the results could be significant when readdressing legislation in this area. Furthermore, the conversations in this experiment were as neutral as possible, but it is likely that in a real life situation the conversations would be more emotive or stressful, meaning the delays found in these results could be exacerbated.[7]

Another study which also utilised visual stimuli and associated response times by Kunar et al., (2018), found that having a conversation results in a fixed deficit to an individual's attention regardless of the difficulty of either the conversation or the task being carried out. In a similar method to the previous experiment, participants had to identify visual stimuli. There were several conditions whilst they were identifying stimuli, including either conversing or not conversing, or if the stimuli task was more easy or more difficult. The study found that there is a significant dual-task cost (the negative effects on performance that occur when carrying out two tasks) of having a conversation on visual tracking. The results of this study have implications on having a conversation whilst driving because even if the conversation is "easy" or the car is being driven slowly for example, the individual's attention will be diverted from driving just as much as under any other conditions.

The results of this study also show that when an individual is having a conversation, their ability to track visual stimuli is reduced – meaning they would be less able to consistently monitor vehicles or hazards. This is

significant because the individual may not notice a change on the road, for example an emerging hazard or changing driver behaviour, leading to a potentially dangerous situation.[8]

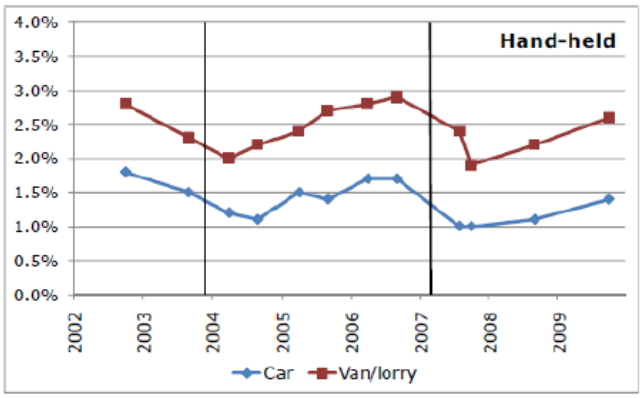
Although the government accepts the evidence that using a hands-free phone while driving distracts the driver and increases the risk of an accident, they do not think a hands-free ban would be enforceable. RoSPA disagrees.

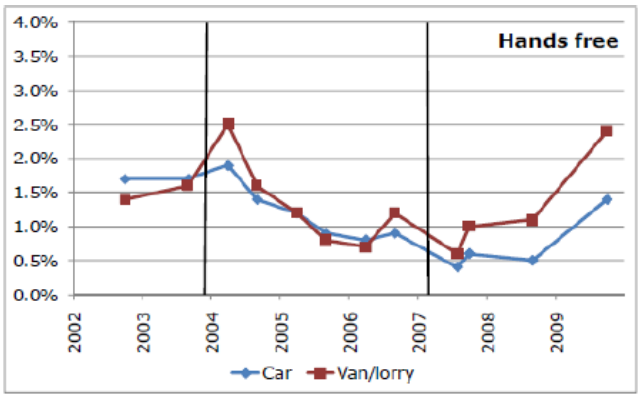
Drivers should also note that the existing law requiring drivers to be in proper control of their vehicle, or careless or dangerous driving laws could be applied to driving while using a hands-free phone, if the police believe the nature of the driving warrants it.

Despite the law and the dangers, a proportion of drivers persist in using their mobiles while driving. Surveys conducted in 2009 found that 2.9% of car drivers, and 5% of van and lorry drivers, were talking on either a hand-held or hands-free mobile phone.

As can be seen in the graphs below, the use of hand-held mobile phones by drivers reduced after the introduction of the law in 2003, then gradually rose gain, before decreasing when the penalty was increased in 2007 (marked with vertical black lines). Unfortunately, the number of drivers using hand-held and hands-free mobile phones has been increasing steadily since mid 2007.[9]

Trends in Hand-held and Hands-free Mobile Phone Use by Car, Van & Lorry Drivers (Weekdays)





Surveys of mobile phones use by drivers in London found a substantial increase in 2009, particularly in the use of hands-free phones, and amongst taxi and van drivers. Overall, the rates in London were much higher than the national rates. [10]

A more recent survey of 1,700 respondents by the RAC, found that 26% of those who were aware of the higher penalties introduced in 2017 still used their mobile phone while driving, the equivalent, according to the RAC of 9.2 million drivers. The survey also revealed that handheld phone use increases when vehicles are stationary. 40% of respondents admitted talking on their phone while their vehicle was stationary in traffic,

39% say that they have checked emails, texts and social media, 29% confessed to writing a text, email or social media post while stationary and 16% admitted taking photos or video[11].

A further survey of 2,000 drivers conducted by the RAC revealed that just 36% of motorists could correctly state the current penalties of six penalty points and a £200 fine for using a handheld phone. 26% were not aware that penalties became more severe in March 2017. Just under one third of motorists believed that the current penalties are still not enough to stop drivers using their phone illegally and believe that visible enforcement (41%) is key to getting people to change their behaviour rather than introducing even stronger penalties[12].

Employers

The law includes an offence of "causing or permitting" a driver to use a hand-held phone while driving. This can apply to employers who will be guilty of an offence if they require or permit their staff who drive for work, to use a hand-held mobile phone while driving.

Employers would be unwise to respond by supplying their staff with hands-free kits. Even if the use of these while driving does not contravene the specific ban on hand-held phones, employers could fall foul of health and safety laws if an investigation determined the use of the phone contributed to an accident.

The "Driving at Work"[13] Guide from the Health and Safety Executive makes it clear that employers have a duty under health and safety law to manage the risks faced by their employees on the road. One of the biggest risks they face is when using mobile phones while at the wheel. Research clearly shows that using a hands-free phone while driving is just as dangerous as using a hand-held phone – there is little point in having both hands connected to the steering wheel, if the brain is not connected to the hands.

There are good reasons for providing mobile phones to staff who drive for work, especially for lone workers and staff who will be travelling through areas where access to a public phone is difficult. If a member of staff breaks down, for example, they need to be able to summon help. Some employers provide mobile phones for certain staff and others reimburse the cost of work related calls made on private mobile phones.

However, this should not mean that staff use the phone while driving. As part of the management of work related road safety, employers should provide employees with clear guidance on the use of mobile phones. The use of hand-held or hands-free phones while driving should be prohibited, particularly as there is a simple alternative – let the phone take messages and return calls when stopped in a safe place.

RoSPA has produced a free guide, "**Driving for Work: Mobile Phones**"[14] to help employers and line managers ensure that their staff do not use mobile phones while driving.

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