

# Road safety factsheet:

## Inappropriate speed factsheet

October 2023

Exceeding the speed limit and travelling too fast for the conditions were assigned by police officers as contributing to 27 per cent of fatal collisions in 2022, as well as 14 per cent of collisions in which a serious injury occurred and 12 per cent of total collisions. This includes both 'excessive speed', when the speed limit is exceeded, but also driving or riding within the speed limit when this is too fast for the conditions at the time (for example, in poor weather, poor visibility or high pedestrian activity).

In Great Britain in 2022, 303 people were killed in collisions involving someone exceeding the speed limit, with a further 2,180 people seriously injured and 5,648 slightly injured. A further 131 people died when someone was travelling too fast for the conditions.<sup>1</sup>

Drivers and riders who are travelling at inappropriate speeds are more likely to have a collision and their higher speed means that the collision will cause more severe injuries, to themselves and/or to other road users. Inappropriate speed also magnifies other driver errors, such as driving too close or driving when tired or distracted, multiplying the chances of these types of driving causing a collision.

### Higher speeds cause more collisions

Higher speeds mean that drivers have less time to identify and react to what is happening around them, and it takes longer for the vehicle to stop. It removes the driver's safety margin and turns near misses into collisions.

Around two-thirds of collisions in which people are killed or injured occur on roads with a speed limit of 30mph or less. At 30mph, vehicles are travelling at 44 feet (about three car lengths) each second. One blink and the driver may fail to see the early warning brake lights; a short glance away and the movement of a child behind a parked car will be missed. Even in good conditions, the difference in stopping distance between 30mph and 35mph is an extra 21 feet or 6.4 metres, more than two car lengths.

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<sup>1</sup> Department for Transport (2023) Table RAS0704: Factors contributing to collisions and casualties, Speed related factors, <https://www.gov.uk/government/statistical-data-sets/reported-road-accidents-vehicles-and-casualties-tables-for-great-britain#factors-contributing-to-collisions-and-casualties-ras07>: Accessed 02/10/2023

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If average speeds reduced by 1mph, the crash rate would fall by approximately five per cent.<sup>2,3</sup> This varies slightly according to road type, so that a 1mph reduction in average speed would reduce collision frequency by about:

- six per cent on urban main roads and residential roads with low average speeds
- four per cent on medium speed urban roads and lower speed rural main roads
- three per cent on the higher speed urban roads and rural single carriageway main roads.

If an individual drives more than 10 – 15 per cent above the average speed of the traffic around them, they are much more likely to be involved in a collision.

Drivers who speed are more likely to be involved in collisions. They are also more likely to commit other driving violations, such as red-light running and driving too close.

## Who speeds?<sup>4</sup>

- On 20mph roads, 85 per cent of car drivers exceed the speed limit and 16 per cent exceed this limit by 5mph or more
- On 30mph roads 50 per cent of car drivers exceed the speed limit and 5 per cent exceed this limit by 10mph or more
- On single carriageway roads 11 per cent of car drivers exceeded the speed limit, only 1 per cent exceeded it by 10mph or more
- On motorways 45 per cent of car drivers exceed the speed limit, with 8 per cent exceeding the speed limit by 10mph or more.

Research<sup>5</sup> suggests there are three types of drivers:

- Compliant drivers who usually observe speed limits (52 per cent of drivers)
- Moderate speeders who occasionally exceed speed limits (33 per cent of drivers) and exceed 30mph limits regularly
- Excessive speeders who routinely exceed speed limits (14 per cent of drivers), often ignoring the 30mph limit, by a wide margin.

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<sup>2</sup> TRL (undated) Memorandum by the Transport Research Laboratory (RTS 27) to the Select Committee on Transport, Local Government and Regions, <https://publications.parliament.uk/pa/cm200102/cmselect/cmtlgr/557/557ap34.htm>: Accessed 03/10/2023

<sup>3</sup> Taylor et al (2002) TRL Report 421: The Effects of Drivers Speed on the Frequency of Road Accidents <https://trl.co.uk/uploads/trl/documents/TRL421.pdf>: Accessed 03/10/2023

<sup>4</sup> Department for Transport (2023) 'Vehicle speed compliance statistics for Great Britain: 2022, <https://www.gov.uk/government/statistics/vehicle-speed-compliance-statistics-for-great-britain-2022/vehicle-speed-compliance-statistics-for-great-britain-2022#car-compliance-with-speed-limits>: Accessed: 03/10/23

<sup>5</sup> Stradling, S. et al (2008) 'Road Safety Research Report 93: Understanding Inappropriate High Speed: A Quantitative Analysis' [https://www.researchgate.net/publication/340950122\\_Understanding\\_Inappropriate\\_High\\_Speed\\_A\\_Quantitative\\_Analysis](https://www.researchgate.net/publication/340950122_Understanding_Inappropriate_High_Speed_A_Quantitative_Analysis): Accessed: 03/10/23

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## Higher speeds cause more serious injuries<sup>6</sup>

The risk of injury in any collision is influenced by many factors, including the vehicle's speed, its design, strength and occupant protection systems, whether the occupants were wearing seatbelts, the nature of the other vehicle(s) or object(s) struck, and the medical care received by the victims.

### Car drivers

Car drivers are much more likely to be injured in collisions at higher speeds. On average, in frontal impacts, belted drivers have a 17 per cent risk of being fatally injured in impacts at 40mph and a 60 per cent risk at 50mph. Although, half of drivers who were fatally injured were in an impact of 34mph or less.

### Side impacts

When cars are hit from the side, drivers are at a much greater risk: in a collision at 40mph, the risk of a belted driver being killed is 85 per cent.

### Pedestrians

Multiple studies (see Table 1 below) have shown that pedestrians are more likely to be seriously or fatally injured when hit by car drivers at higher speeds, and particularly when the driver is travelling more than 30mph.

An analysis of vehicle speed in pedestrian fatalities in Great Britain<sup>4</sup>, found that 85 per cent of pedestrians killed when struck by cars or car-derived vans, died in collision that occurred at impact speeds below 40mph, 45 per cent at less than 30mph and five per cent at speeds below 20mph.

The risk of a pedestrian who is hit by a car driver being killed increases slowly until impact speeds of around 30mph. Above this speed, the risk increases rapidly, so that a pedestrian who is hit by a car driver travelling at between 30mph and 40mph is between three-and-a-half and five-and-a-half times more likely to be killed than if hit by a car driver travelling at below 30mph. However, about half of pedestrian fatalities occur at impact speeds of 30mph or below. Elderly pedestrians have a much greater risk of suffering fatal injuries than other age groups.

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<sup>6</sup> Stradling, S. et al (2008) 'Road Safety Research Report 93: Understanding Inappropriate High Speed: A Quantitative Analysis'

[https://www.researchgate.net/publication/340950122\\_Understanding\\_Inappropriate\\_High\\_Speed\\_A\\_Quantitative\\_Analysis](https://www.researchgate.net/publication/340950122_Understanding_Inappropriate_High_Speed_A_Quantitative_Analysis): Accessed 03/10/2023

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 Table 1: Pedestrian Fatality Risk <sup>4</sup>

| Country | Date      | Number of injuries examined      | Risk of fatal injury at 30mph | Increased risk of fatal injury between 30mph and 40mph |
|---------|-----------|----------------------------------|-------------------------------|--|
| UK      | 1970s     | 358                              | ~9 per cent                   | 5.5 times more likely                                  |
| Germany | 1999-2007 | 490 (excludes children under 15) | 7 per cent                    | 3.5 times more likely                                  |
| UK      | 2000-2009 | 197                              | 7 per cent                    | 4.5 times more likely                                  |

## How can speed related collisions be reduced?

### Driver education

Education is vital in trying to change attitudes towards speeding. Those who drink and drive are seen as behaving in a dangerous, anti-social and selfish manner with little regard for the safety of other people. However, those who speed are often not regarded in this way unless they grossly exceed the speed limit. Therefore, it is essential that the dangers caused by driving at inappropriate speeds are clearly explained and demonstrated (in the way that has been done for drink driving) to work towards a general acceptance and ownership of the problem of illegal and inappropriate speed.

Motor manufacturers, national press, TV and advertisers should not glamourise speed as exciting and exhilarating nor as 'normal' behaviour. The Advertising Standards Authority (ASA) has taken action on a number of occasions against car advertisements that promote speed, and this is very welcome. The ASA and other broadcast regulatory bodies could usefully review and strengthen their guidance in this respect.

### Driver training

Speeding is a symptom of a more general poor attitude towards driving. One of the weaknesses of the UK's driver licensing system is that once the driving test has been passed, the driver is licensed, virtually for life, with no requirement and very little incentive to develop his/her driving skills any further. Drivers can voluntarily take further training, such as Pass Plus or courses offered by driver training providers such as RoSPA, but there is little incentive for individual drivers to do so.

The Department for Transport (DfT) introduced driver rectification courses as an alternative prosecution for minor motor vehicle offences. One example of this is the National Speed Awareness Course, which is a short driver offender retraining scheme that drivers can choose to attend rather than receiving a fine and penalty points on their driving licence.

A 2018 evaluation of the effects of the National Speed Awareness Course on re-offending rates identified that participation in the course was more effective at reducing speed reoffending than receiving a fine and penalty points over a period of three years. Between 12 per cent and 23 per cent of drivers who attended a National Speed Awareness Course were less likely to reoffend within six months of committing their first offence. This

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fell to 9-17 per cent within 12 months, 9-11 per cent within the first two-years, and 6-13 per cent within three years<sup>7</sup>.

### The driving test

Over the last 30 years or so, the driver training regime and the Driving Test in Britain has been enhanced in a number of ways, including the introduction of the theory test, the hazard perception test, pass plus and the independent driving section of the test (where candidates have to drive to a destination without step-by-step directions) in the test.

In December 2017, changes were made to the driving test. These changes included increasing the independent driving section of the test from 10 to 20 minutes, asking candidates to follow directions from a sat nav during the independent driving section of the test and some modifications to manoeuvres performed in tests to ensure that they are undertaken during the natural course of the test, rather than in a traditionally staged way.

In 2018, changes were made to allow learner car drivers to take driving lessons on motorways in England, Scotland and Wales, if they are accompanied by an approved driving instructor driving a vehicle fitted with dual controls.

### Post-test

Graduated Driver Licensing (GDL) also offers opportunities to provide phased driving experience for novice drivers during the period when they are most at risk of being involved in a collision, and of reducing their exposure to the factors that are most dangerous to them. Research<sup>8, 9</sup> has found that fatal collisions among young drivers reduced by nine per cent to 60 per cent, and overall casualties by five per cent to 32 per cent in countries that introduced GDL schemes.

It has been estimated that a GDL system in Great Britain would result in 81 to 114 fewer deaths and 538 to 872 fewer serious injuries annually (depending on the extent of night-time and passenger restrictions applied).<sup>10</sup> Another analysis of the effects if the system only applied to 17 to 19-year-old drivers concluded that in an average year, it could save 4,478 casualties, including 433 deaths and serious injuries and deliver social and economic benefits valued at £200.1 million.<sup>11</sup>

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<sup>7</sup> DFT (2018) Impact Evaluation of the National Speed Awareness Course,

<https://www.gov.uk/government/publications/national-speed-awareness-course-impact-evaluation>: Accessed 03/10/2023

<sup>8</sup> Hartling et al. (2011) 'Graduated driver licensing for reducing motor vehicle crashes among young drivers', Cochrane Database of Systematic Reviews

<sup>9</sup> Kinnear et al. (2013) Novice Drivers: Evidence Review and Evaluation. Crowthorne: TRL

<sup>10</sup> Jones et al. (2013) 'Reducing Young Driver Crash Casualties in Great Britain: Use of Routine Police Crash Data to Investigate the Benefits of Graduated driver Licensing, International Journal of Injury Control and Safety Promotion, 20(4): 321-330

<sup>11</sup> Kinnear et al (2014) 'Graduated Driver Licensing: A Regional Analysis of Potential Casualty Savings in Great Britain'

[http://www.racfoundation.org/assets/rac\\_foundation/content/downloadables/graduated\\_driver\\_licensing\\_regional\\_analysis\\_trl\\_270514.pdf](http://www.racfoundation.org/assets/rac_foundation/content/downloadables/graduated_driver_licensing_regional_analysis_trl_270514.pdf) Accessed 03/10/2023

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### Highway design and engineering

Drivers' choice of speed is partly dependent on the characteristics of the road on which they are driving, and drivers' perception of what is a safe speed on a particular road will often differ to that of other road users, such as pedestrians, pedal cyclists and horse riders. Therefore, it is important that road design gives drivers the right messages about the maximum safe speed.

RoSPA advocates the safe system approach, which is advocated by the World Health Organisation and is part of the 'Vision Zero' philosophy. This approach is based on the understanding that injury is caused by an exchange of energy in quantities higher than human tolerance. Preventing or minimising this exchange of energy can therefore prevent injuries. This approach recognises that people make mistakes, and designs roads and vehicles so that these mistakes are not likely to result in death or serious injury. One of the pillars of this approach is 'safe speeds'.

### 20mph zones and 20mph limits

The measures that are most effective in reducing vehicle speeds and thereby reducing road death and injury are area-wide traffic calming schemes and 20 mph zones.

RoSPA strongly supports the use of 20mph zones, as they are an effective means of reducing road collisions and casualties. They are very effective at protecting our most vulnerable road users, including children, pedestrians and cyclists, and significantly decrease the risk of being seriously injured in a collision. RoSPA encourages their greater use, especially in residential areas.

RoSPA also supports and encourages the wider use of 20mph limits. They have been shown to reduce traffic speed, although not as much as 20mph zones with traffic calming. However, they are considerably less expensive to implement, which means that wider areas can be covered. They also provide additional benefits, such as encouraging more physical activity, such as walking and cycling. They can also greatly improve the character of a residential area and quality of life of the residents.

The evidence about 20 mph Zones and Limits is summarised in RoSPA's "[20mph Zones and Limits](#)" factsheet.

### Safety cameras

An independent review<sup>12</sup> of more than 4,000 safety cameras over a four-year period showed conclusively that cameras significantly reduce speeding and collisions and cut deaths and serious injuries at camera sites.

The review found that cameras can cut speeds and reduce collisions:

- The number of **vehicles exceeding the speed limit at fixed camera sites fell by 70 per cent**. The reduction at mobile camera sites was 18 per cent

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<sup>12</sup> UCL (2005), Report for the Department for Transport, The National Safety Camera Programme: Four-year Evaluation Report

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- **Excessive speeding (15mph or more above the limit) fell** by 91 per cent at fixed sites and by 36 per cent and at mobile sites
- Average vehicle speed across all new sites fell by six per cent overall
- The number of **people killed and seriously injured fell by 50 per cent at fixed sites and by 35 per cent at mobile sites**
- There was a **32 per cent reduction in the number of children killed and seriously injured** at camera sites
- The number of **pedestrians killed or seriously injured fell by 29 per cent** at camera sites
- There was a **22 per cent reduction in collisions involving (fatal, serious or slight) personal injury** at camera sites. This equated to 4,230 fewer personal injury collisions per year.

Research on average speed cameras has demonstrated significant positive effects on road safety. The RAC foundation commissioned a study to assess their effectiveness in Great Britain<sup>13</sup>. The study found that the implementation of average speed cameras substantially decreased injury collisions, especially those of higher severity, with results showing substantial and statistically significant reductions.

More recently Lancashire road safety partnership conducted an evaluation of the impact of permanent average speed cameras had in Lancashire<sup>14</sup>. The evaluation found that overall collisions and casualties reduced; both in numbers and in severity. Additionally, it noted increased societal acceptance of average speed cameras compared to traditional speed enforcement methods like spot-speed cameras and mobile speed enforcement.

## Vehicle engineering

Vehicle technology is changing rapidly, as collision avoidance systems and autonomous technology are developed. Modern cars provide a smooth, quiet drive, even at very high speeds, and therefore drivers are often insulated from any real sensation of the speed at which they are travelling. The vehicle's power means that it is very easy to creep above the speed limit. Indeed, drivers often cite this as a reason for speeding.

## Speed warning technology

Speed warning technology gives the driver a visual and/or audible warning if they exceed a pre-set speed. Some systems also inform the driver of the speed limit of the road they are using, and/or of safety camera sites ahead. They are often, but not always, incorporated into sat navs, but some vehicles have built-in technology.

It can help to keep drivers aware of their speed and encourage them not to exceed speed limits, but drivers should take care not to use the technology to 'get away' with speeding by relying on it warning them when they are approaching safety cameras.

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<sup>13</sup> RAC Foundation (2016) The Effectiveness of Average Speed Cameras in Great Britain,

[https://www.racfoundation.org/wp-content/uploads/2017/11/Average\\_speed\\_camera\\_effectiveness\\_Owen\\_Ursachi\\_Allsop\\_September\\_2016.pdf](https://www.racfoundation.org/wp-content/uploads/2017/11/Average_speed_camera_effectiveness_Owen_Ursachi_Allsop_September_2016.pdf): Accessed September 2023

<sup>14</sup> Lancashire Road Safety Partnership (2021) The Rollout and Impacts of Permanent Average Speed Cameras in

Lancashire, Version 2.2, <https://lancsroadsafety.co.uk/wp-content/uploads/2022/03/22112929/Average-Speed-Cameras-Impact-Evaluation-Spring-2021-v.2.2.pdf>: Accessed September 2023



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They should also choose their pre-set speed according to the type of road on which they will mostly be driving. If mainly driving on 30mph roads, the warning should be set at 30mph; if driving on motorways, setting it at 70mph makes more sense.

### Intelligent speed adaptation

Technology that can prevent drivers from exceeding the speed limit on any road is being introduced in some vehicles. Research has shown that intelligent speed adaptation as the effect of reducing collision frequency and severity. This is caused by a reduction in speeds and the improvement of safety performance indicators.<sup>15</sup>

One of the requirements for the widespread implementation of this technology is a digital map showing the speed limit on every road in the country, which can easily and regularly be updated, including taking account of speed limit changes due to road works. Ultimately, this will make it possible to display the speed limit of every road within the car, so that a driver can constantly be aware of the limit.

### Employers

Driving is the most dangerous work activity that most people do, and it contributes to far more accidental deaths and serious injuries than all other work-related activities.

As an employer, it is your responsibility to manage the health and safety risks of workers who drive vehicles, motorbikes, or other powered two wheelers, as part of their work activity. The Health and Safety Executive (HSE) guidance: [Driving and riding safely for work](#) reminds employers that [health and safety law](#) applies to on-the-road work activities just as it does at a fixed site. The law applies to both company and grey fleet vehicles. While the law does not cover commuting to a regular place of work, it does apply if a worker is traveling to a work location that is not their normal place of work.

RoSPA has produced a Guide, "[Driving for Work: Safer Speed Policy](#)", to help employers and line managers to ensure that their staff are not tempted or pressurised into driving at inappropriate speed. It includes a sample 'Safer Speed Policy' that can be adopted as written or adapted to suit an organisation's needs.

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<sup>15</sup> Theofilatos, A, et al (2017) Effectiveness of intelligent speed adaptation, collision warning and alcolock systems on driving behaviour and safety, <https://www.safetycube-project.eu/wp-content/uploads/SafetyCube-MaaS2017-FulPaper-Ziakopoulos.pdf>: Accessed 03/10/23