Speeding

- Speeding is a major factor in serious and fatal traffic crashes.
- Speeds just over 5 km/h above the speed limit in urban areas, and 10 km/h above the speed limit in rural areas, are sufficient to double the risk of a crash — equivalent to the increase in risk associated with a blood alcohol concentration of 0.05[1].

Image source: Queensland Police Service

State of the Road A Fact Sheet of the Centre for Accident Research & Road Safety - Queensland (CARRS-Q)

THE FACTS

- Speeding is not just driving faster than the posted speed limit. It is also driving too fast for the prevailing weather, light, traffic and road conditions without full regard for the vehicle condition and driver skills and experience[2].
- It is difficult to determine the exact cause of every crash. It is also difficult to identify a single cause, as often more than one factor can contribute to a crash. The role of speed in crashes is often underestimated[3].
- In 2015 in Queensland, 62 people died as a result of crashes involving speeding drivers. This figure represents more than 1 in 4 deaths and 25.5% of the state's road toll[4]. Many more people suffered injuries due to speeding on our roads.
- Australia has some of the highest speed limits in the world[5]. The Australian Transport Council asserts that the incidence of serious casualty crashes could be significantly reduced by decreasing vehicle speeds. Research has shown that decreasing vehicle speeds by 5 km/h on roads with a speed limit of 60 km/h produced an 11.9% reduction in serious crashes. Reducing vehicle speeds by a further 5 km/h (i.e. by 10 km/h) would result in a 17.3% reduction in all serious crashes[6].

Speed and energy transfer in a crash

The severity of injuries resulting from a crash, regardless of its cause, is directly related to the pre-crash speed of the vehicle. Even small increases in travel and impact speeds result in a large increase in the forces acting upon vehicle occupants or other road users[5]. When a vehicle crashes there are three collisions that occur[7]:

1. **Collision with another object,** be it a pole or tree, another vehicle or person.
2. **Collision involving the occupants of the vehicle.** At the moment of impact, vehicle occupants still travel at the vehicle pre-crash speed. When the car stops, passengers continue to move forward until they come into contact with part of the vehicle (e.g. an airbag or seat).
3. **"Internal" collision of the organs within the human body.** Even after a passenger has become motionless within the vehicle, internal organs are still moving, colliding with other organs and the skeletal system.

Even small decreases in travel speed can reduce crash and injury severity and save lives.

Speed and injury risk

- There are strong direct relationships between the speed at which we drive or ride, the risk of crash involvement and the injuries sustained in a crash[5,7].
- The probability of injury and the severity of those injuries increases exponentially with vehicle speed. Even small increases in motion and impact speeds result in a large increase in the forces acting upon vehicle occupants or other road users[5]. Put simply, the faster you drive/ride, the harder you hit and the more severe the injuries[8].
- The likelihood of surviving a crash decreases rapidly above certain impact speeds, depending on the nature of the collision[1].

What is the problem with speeding?

- Speeding increases the risk of being involved in a fatal or serious injury crash:
  - You travel further in the time it takes you to notice and then react to hazards;
  - You are more likely to lose control of your vehicle (e.g. on a curve);
  - Other road users may misjudge your speed (i.e. they may think you are travelling at the speed limit); and
  - The faster you go, the longer it takes to stop (see Figure 1, over page).
- The 2016 Queensland Government Road Safety Campaign provides some additional information about how fast your vehicle would still be travelling when it collides with the hazard on the road.
- Even when speeding by a small amount, crash risk increases[8]. For example, evidence suggests that if you:
  - Travel at 5 km/h over the speed limit in a 60 km/h zone, you're twice as likely to have a serious crash.
  - Travel at 10 km/h over in a 60 km/h zone, you're four times as likely to have a serious crash.
  - Travel at 20 km/h over in a 60 km/h zone, you're 32 times as likely to have a serious crash.
  - Travel 10 km/h faster than the average speed of other traffic, you're twice as likely to have a serious crash.

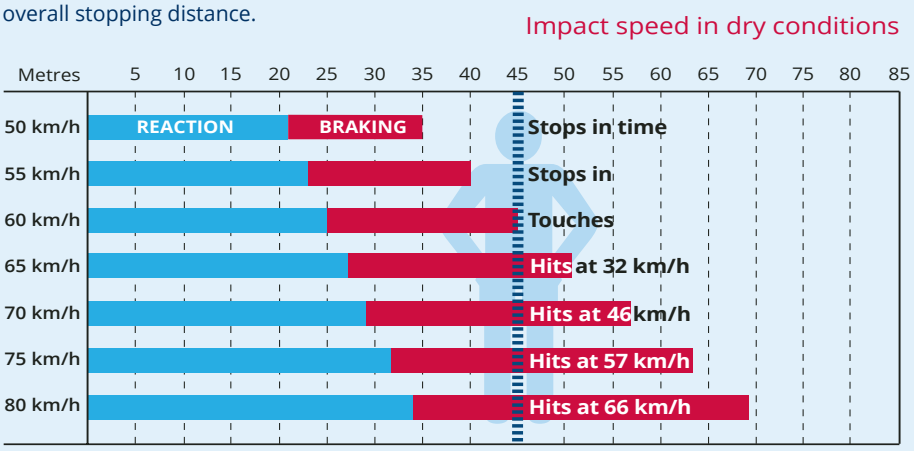
Who speeds?

- Many of us might inadvertently speed.
- Some people speed because of the perception that they are immune from being caught by police. Such perceptions can relate to enforcement tolerance thresholds applied by police to speed detection equipment to allow for slight variation in speed measurement[5].
- It is illegal to drive at any speed above the posted limit. In Queensland, the enforcement tolerance level used by the police is not published. This means that

FIGURE 1:

Stopping distance: the combined effect of reaction and breaking time[14]

The graph below demonstrates the combined effects of reaction and braking times on overall stopping distance.



drivers/riders are likely to be making incorrect assumptions about how fast they can drive without being detected by police. Queensland Police have been incrementally reducing the enforcement tolerance threshold. Their message to the motoring public remains the same: Any speed above the posted speed limit is illegal.

- Certain groups of road users are over-represented in regards to speeding offences and speed related fatalities. For example, young drivers, particularly young men, are at a higher risk of committing a speeding offence and of being repeat speeding offenders[9]. Males are generally over-represented in speed-related fatality statistics[10]. People who have committed two or more high-range speeding offences (more than 30 km/h above the speed limit) are also more likely to have committed other driving offences and to have a criminal history[10]. This suggests that those who persistently speed not only disrespect traffic laws but other laws as well.

More speed = faster travel time?

- On most trips, speeding will not save you very much time. For example, on a 10 km journey, you would save less than a minute if increasing your average speed from 60 km/h to 65 km/h. Conversely, on a 100 km journey, a reduction in speed from 110 km/h to 100 km/h added only between 2.2 and 5.5 minutes to the overall travel time[9]. When travelling faster, more fuel is consumed and vehicles emit more of the gases that contribute to air pollution[1].
- In-vehicle technology has shown that staying within speed limits, particularly for commuter journeys on urban roads, does not add to your travel time[12]. Indeed, keeping to the speed limit may actually assist with reducing traffic congestion by improving traffic flow through reductions in speed variation and improved vehicle headway[5]. Use of technology, such as Intelligent Speed Adaptation systems within vehicles, can also lead to a significant reduction in the number of severe crashes[9,12].

Penalties for speeding

- The consequences of speeding include not only a fine and loss of licence, but also potential loss of insurance cover, WorkCover and also possible prosecution for breaches of the Workplace Health and Safety Act.

CARRS-Q'S WORK IN THIS AREA

- International review of strategies that have been used to promote public demand for safer speeds on the road. This review, conducted for Austroads, will guide future anti-speeding campaigns.
- International review of point-to-point speed enforcement for Austroads, including the development of recommendations for better practice in the Australian and New Zealand context.
- Examination of offence records of a large sample of motorists who were convicted of speeding, to ascertain characteristics and effectiveness of applied sanctions.
- Profiling repeat speeding offenders and examining the effects of increased legal penalties on speeding in Queensland[10].
- Comparing attitudes towards speeding and other risky driving behaviours, such as drink driving, to develop more targeted road safety countermeasures.
- Impact of changes in vehicle speed caused by driver mobile phone usage on traffic flow.
- Influence of passengers on driver speeding behaviours.
- Evaluation of anti-speeding advertisements aimed at young drivers.
- Drivers' responses to anti-speeding advertisements.
- The use of gamified systems, embedded in mobile phone devices, to improve speed related driving decisions.
- Perceptions of the likelihood of being apprehended for speeding offences on reported driving behaviour.

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