NRSPP
NATIONAL ROAD SAFETY
PARTNERSHIP
PROGRAM

Q&A

# Q&A: Road Trauma and Young Drivers – Does Gender Make a Difference

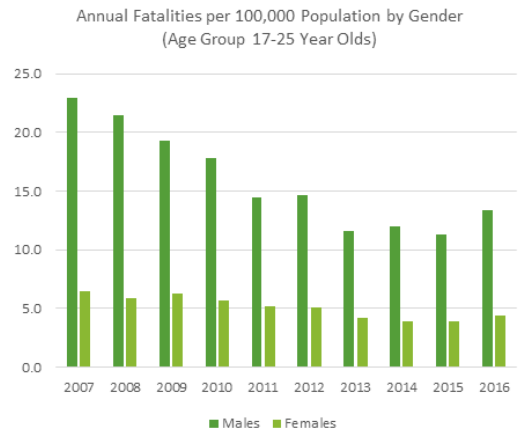
## The Question:

Why are young men more likely to be involved in a road crashes than young women?

This Q&A explores the differences in the development and behaviour of young male and female drivers, which can lead to an increased risk of road trauma.

## Scope of the problem

Young drivers appear more in fatality statistics than any other age group. This is because younger drivers are 5 to 10 times more likely to incur injury because of road crashes, compared to drivers from the safest age range[1]. Differences in crash risk between younger and older drivers are often attributed to physiological, psychological, and behavioural differences associated with age.
For young drivers, their increased crash risk is known to be caused by not only driving inexperience and risk-taking behaviours, but lack of neurological development.




However, there are also specific differences in the crash risk of these young adults based on their gender. Young men have consistently higher rates of death than young women, even when the differences in the circumstances of the road crash are taken into account[2]. The age group of 20-24 makes up approximately 4% of the Australian population, however, males from this age group make up 10% of annual road fatalities. Women from this age group make up only 2% of road fatalities. In fact, in all but one age category (50-59), males die in a far great proportion than their share of the population[3].

In Australia, over the past 10 years, young men have been involved in substantially more road crashes than young women. As can be seen from the graph below, from 2007-2016, on average there are 5.1 fatalities of women aged 17-25 per 100,000 people. The average for young men is more than three times that, at 15.9[4].

These fatalities not only have a devastating effect on the lives of young people and their families, but also impact the economy and health care system. In Victoria, the estimated yearly lifetime care cost of young drivers injured in road crashes is $634 million[5].

## *Risk-Taking Behaviour*

Studies have shown that men are more likely to engage in risk-taking behaviour compared to women of the same age, from an early age. This is because young men are less likely to believe that they will get hurt when taking risks. In addition, men are more likely to see injury as a product of bad luck, rather than a result of controllable behaviours[5].

A study of 157 females and 116 males, aged 13-20, investigated the influence of personality characteristics and gender on perception of risk and risk-taking behaviour. The results showed that men perceived behaviours as less risky, took more risks, were less sensitive to outcomes, and showed less social anxiety when it came to taking risks. Analysis of the results also showed that age, behavioural inhibition and impulsiveness directly influenced the participants' perception of risk. Additionally, social anxiety, impulsiveness and sensitivity to rewards were personality traits shown to be indirectly associated with risk-taking behaviour. The study concluded that although young people may understand the riskiness of their behaviour at the level that adults do, their sensitivity to impulsiveness is much higher[7].

Young drivers tend to find themselves in riskier circumstances because they overestimate their driving skills and abilities. In addition, they tend to under-estimate the risks and hazards associated with different road environments and the risks associated with their driving behaviours, such as using their mobile phone while driving. Self-reported risky driving behaviours by young drivers have been linked with a 50% increase in the risk of being involved in a road crash. Studies have shown that young drivers are more likely to exceed the speed limit, drive too close to other vehicles and signal poorly[1].

Whilst the risk-taking behaviour of adolescents and young adults can be considered normal as part of the developmental process, it can have serious injury consequences. Young adults are particularly susceptible to risk taking and injury-causing behaviour as their executive brain function has not finished being developed and development of the ability to appreciate risk is still occurring[6].

## *Why do males engage in more risky behaviour on our roads?*

Risk-taking behaviour has been cited as a plausible explanation for the high incidence of motor vehicle crashes involving young male drivers.

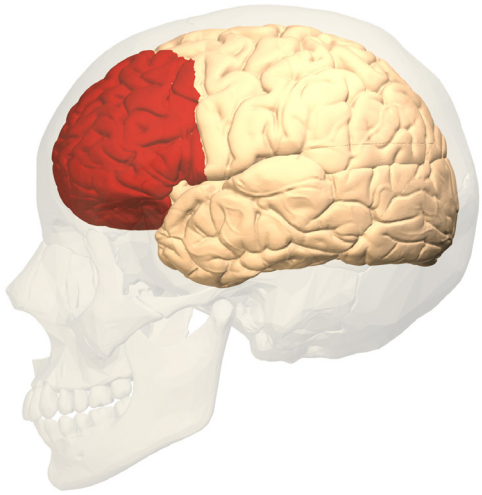
Several hypotheses have been developed to explain why men engage in more risky behaviours than women. One hypothesis is that women do not necessarily evaluate the probability of negative outcomes differently than men, they simply assume they would be more emotionally upset or harmed by negative outcomes, should they occur. An alternate hypothesis is that women simply assess the probability of unfavourable outcomes more greatly than men[2].

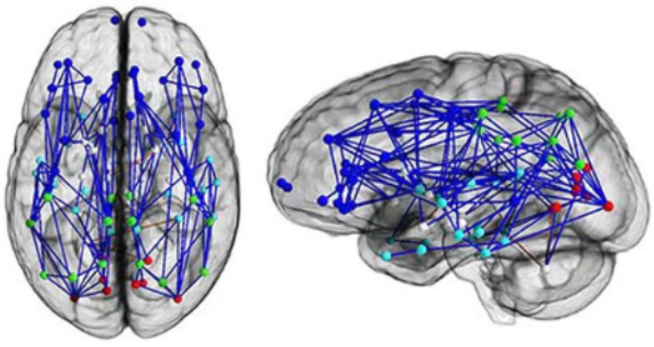
A study undertaken by the University of Queensland investigated age and gender difference in risk-taking behaviour as an explanation for a high incidence of motor vehicle crashes in young males. The results showed that males are more likely to experience driver aggression and thrill seeking. An analysis of crash data in this study showed that males were twice as likely as females to have reported at least one crash as a driver. Males were nearly three times as likely to report two or more crashes as a driver. Drivers aged 17-29 were also twice as likely to have reported at least one crash when compared with drivers over 50[9].

## *The Science Behind Risk-Taking Behaviour*

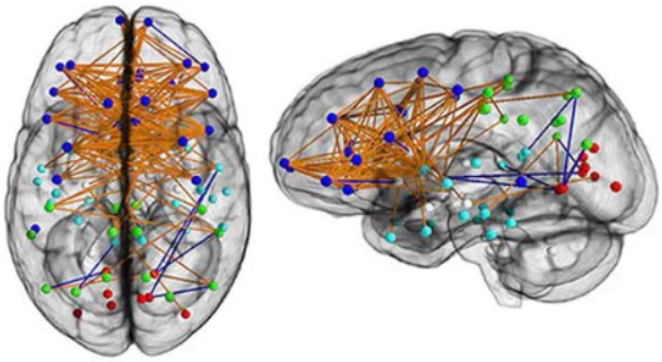
Young men engage in more risk-taking behaviour than young women for the simple reason that biologically young men aren't as mature as young women[10]. Magnetic reasoning imaging (MRI) studies, which enable scientists to watch the rate at which the brain matures, have shown that the male brain doesn't fully develop until age 25. Whereas, a woman's brain experiences maturity at an age of 21. MRIs have revealed the brain's developmental process tends to occur from the back of the brain to the front, which explains why the pre-frontal cortex develops last (pre-frontal cortex shown on image[11]). With an immature pre-frontal cortex, even though we can intellectualise dangerous situations or poor behaviour, we may engage in these activities anyway. The comparative slowness of a man's brain maturation can explain a whole list of maturity failings, such as risky behaviour on the road, and their own recognition and admittance of those failings[12].

These images show the differences in brain connections between males and females. The top image is a neural map of a typical man's brain; the bottom image a typical woman's brain. As can be seen, the male brain is less developed and has less connections, especially in the pre-frontal cortex.





▲ Neural map of a typical man's brain. Photograph: National Academy of Sciences/PA



▲ Neural map of a typical woman's brain. Photograph: National Academy of Sciences/PA

Source:
theguardian.com/science/2013/dec/02/men-women-brains-wired-differently.

## *Other factors that contribute to higher risk*

Several other factors that help explain the gender disparity in the road trauma of young drivers have been cited in literature. These include the presence of passengers leading to peer pressure, alcohol and drugs, speed, mobile phone use, and vehicle safety technology.

### Passengers and Peer Pressure

The presence of passengers, similar in age to a young driver, increases the risk of being involved in a crash[13]. The gender of both the driver and the passengers can impact the driver's crash risk. Studies have shown that drivers with only male passengers are more likely to crash when compared with drivers who only had female passengers[1].

Studies have also shown that young drivers, aged between 16 and 19, are more likely to experience a fatal crash if they carry one or more passengers, and the more passengers, the higher the crash risk. The chances of a young driver having a crash increase by five times if they have young adult passengers in the car. This is because the presence of passengers distracts young drivers, leading to driving errors. The presence of passengers can also lead to peer pressure for the driver to act recklessly, or undertake law breaking activities (such as overcrowding the vehicle)[1].

In a study of 1,000 young drivers, 68% of drivers said they had felt intense peer pressure when driving, 31% admitted to speeding as a result of peer pressure, and 14% confessed to having an accident due to a disruptive passenger. Further reinforcing the finding that peer pressure impacts driving ability, 46% of drivers said they drive more sensibly when their parents are in the car rather than their friends[13]. While peer pressure behind the wheel has always existed, it has arguably been exacerbated among today's generation due to popular culture that can negatively influence driving behaviours.

### *Alcohol and Drugs*

On average, males have a much higher number of reported cases of drink driving-related fatal crashes compared to females. A study undertaken in South Australia showed that, on average, 87% of driver or rider fatalities where the driver had a blood alcohol level above the legal limit were male. Furthermore, on average 82% of driver or rider fatalities with a positive driver reading for methamphetamine, THC or ecstasy, or a combination of these drugs, were male[14].

### *Speed*

In France, a study of drivers aged 18-25 explored young drivers' sensation seeking, subjective norms, and perceived behavioural control, and their roles in predicting speeding intention. The results showed that men had a higher intention to speed than women. This is because the impact of sensation seeking was stronger with men. The intention to speed while driving increased within the age range, due to driving experience and perceived control of the vehicle among more experience drivers[15].

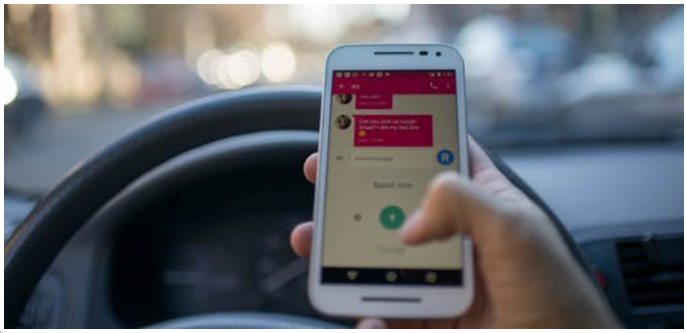
## Mobile Phone Use

Mobile phone use while driving reduces driving safety performance, with evidence showing that younger drivers are more likely to use their mobile phones while driving. According to the NSW Centre for Road Safety, male drivers under age 26 were responsible for a majority of the serious casualty crashes involving mobile phones between 2008 and 2016[16].

Younger drivers, aged 18 to 25 years, are twice as likely to make a phone call and four times more likely to text while driving, than drivers in other age groups. Furthermore, 12% of young drivers have admitted to updating their Facebook status while driving and 14% have admitted to taking a selfie and uploading it while driving[17].

A group of 158 male and 357 female university students in the United States of America participated in an online study of the psychological reasons behind texting while driving. The results showed that men and women did not differ in self-reported incidents of texting while driving, however, women tended to send shorter text messages[18].

Younger drivers are not only more likely to text while driving, but they are also more likely to think that it is acceptable. Younger drivers are less likely to support legislation intended to reduce distracted driving, for example the laws against mobile phone use. This can be attributed to driving inexperience, and not fully understanding the consequences of their risky behaviour[19].



## Vehicle Safety Technology

The presence of occupant protection and safety features in a vehicle also Influences the severity of injury that may occur in a road crash. Younger drivers tend to drive older vehicles than middle aged drivers. In Australia, young women are generally more likely to drive newer vehicles than young men[20]. This can be seen to be contributing to an increased level of injury in young men in a crash as older cars have fewer safety features.

In addition, the use of safety technologies, such as seat belts, also influences injury outcomes. Seat belt wearing rates are generally quite high in Australia. However, lower usage rates are seen among young people. No research has been undertaken in Australia on whether gender effects seat belt use, but overseas evidence suggests young men are more likely to be unrestrained than young women[20].

### *Key Points*

- Young drivers appear more in fatality statistics than any other age group
- Young men have consistently higher rates of death than young women
- Young drivers tend to find themselves in riskier circumstances because they overestimate their driving skills and abilities
- Young men engage in more risk-taking behaviour than young women for the simple reason that biologically young men aren't as mature as young women
- The presence of passengers, and their gender, increases the risk of young drivers being involved in a crash
- Males have a much higher number of reported cases of drink driving-related fatal crashes compared to females
- Young males have a higher intention to speed than young females
- Younger drivers are not only more likely to text while driving, but they are also more likely to think that it is acceptable

## *Reducing Young Drivers Crash Risk?*

It is critical that effective countermeasures are adopted and implemented to reduce the crash rates experienced by young drivers.

The crash risk of young drivers can be reduced through modifying behaviours that can be changed, such as skills, experience, education and training received. Driving skills relates to the driver's ability to operate their vehicle in a manner that reflects the road conditions. Young drivers need to learn to drive their vehicles using minimal cognitive resources, freeing up their minds to focus on the behaviour of other drivers. Young drivers, who are still developing their cognitive driving skills, tend to be overly reliant on formal traffic rules or laws, which can contribute to them failing to anticipate the mistakes of other road users[1].

The RACV outlines various types of driver training programs appropriate for young drivers[21]:

- Pre-licence training programs: Various organisations operate special driver training programs for learners and pre-learners. These programs usually aim to encourage the development of safe driving techniques and can involve road law knowledge tuition and some in-car components, either on an off-road track or circuit, or on-road under supervision.
- Professional driving instruction for learners: Basic driver training works at an instructional level. Most people are initially trained to drive by a driving instructor, friends, relatives, or a combination of these, to obtain their driver's licence. This type of driver training concentrates on basic car control skills, driving techniques, road law knowledge and initial driver licensing.
- Higher order testing within a graduated driver licensing (GLS) program: Some GLS programs require novices to pass additional tests of higher-order skills to progress to less restricted licensing levels and to "graduate" to full licence status.

CARRS-Q's tips for young drivers to stay safe on the road include[2]:

- Follow the road rules
- Drive to the conditions
- Stay attentive
- Avoid driving with groups of friends
- Resist peer pressure
- Avoid distractions
- Do not use your mobile phone
- Do not consume alcohol or drugs
- Plan ahead
- Do not speed
- Maintain a safe following distance
- Wear a seat belt
- Avoid driving if you are tired or feeling unwell
- Be aware of blind spots
- Maintain your car

## *For More Information*

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