

Avoiding vehicle rollovers

Each year in Australia, hundreds of rollovers cause significant loss of life and injury, damage to vehicles, property and goods.

The National Transport Institute (NTI) indicated that from 2003-2007 in Australia: 60% of rollovers involved semi-trailers, 41% of rollovers involved inappropriate speed, and 30% of rollovers involved fatigue.¹

This could involve any type of vehicle however, it is more common for trucks. While the driver of light vehicles will typically feel when the vehicle's wheels lift off the ground as a rollover starts and have an opportunity to correct it, this is not the case for trucks.

What causes vehicle rollovers?

- ▼ Inappropriate speed while cornering. Cornering force is greater increased the faster the vehicle is going, and the tighter the turn. For example, travelling around a bend at twice the speed, will increase the cornering force by four times.
- ▼ Speed. Speed can also be an issue when travelling in a straight line. At 100 km/h, any slight correction would have a rollover force at four times what the same maneuverer would have at 50 km/h.
- ▼ A high centre of gravity. The height of the center of gravity directly affects the rollover threshold.
- ▼ Avoidance or over correction. When a driver attempts to avoid a hazard and turns too abruptly resulting in possible rollover.
- ▼ Poor brake condition. For a driver to have the maximum control over their vehicle, it is important that the brakes be in a good working condition. Systems such as Electronic Braking System (EBS) and Electronic Stability Control (ESC) can assist in preventing rollovers.

- ▼ Driver distraction, inattention, and fatigue. If a driver is not focused on the driving task, they may misjudge a corner, or enter a corner too fast. A distracted driver, who becomes aware of danger at the last moment, is also more likely to over correct.
- ▼ Adverse weather conditions. For vehicles with a high center of gravity, high winds can be associated with an increased rollover risk. In addition, any weather that affects the road surface, such as rain, snow, or ice, can all contribute to a vehicle rollover as the contact between the tyres and the road surface is inhibited.
- ▼ Tyre condition. Some rollovers have been attributed to under inflated tyres.²

How to prevent vehicle rollovers:

- ▼ Slow down. Obey the speed limits around corners and drive to the conditions. There may be instances when you need to drive slower than the posted limits, such as when operating a larger vehicle or with a trailer.
- ▼ Stay alert. Ensure you are well rested and that your environment is free of distractions. Be aware of the environment around you.
- ▼ Understand your vehicle. Different vehicles handle differently and some vehicles are more prone to rollover than others.
- ▼ Ensure loads are properly secured. Drivers of tankers and other vehicles where the load cannot be restrained, should take extra care when operating the vehicle.

- ▼ Ensure your vehicle is well maintained. Your brakes are in good working order and that the tyre pressure is correct and tyres are in good condition.
- ▼ Utilise EBS or ESC systems. Electronic braking and stability control systems have been shown to drastically decrease the likelihood of rollovers. ESC helps drivers to avoid crashes by reducing the danger of skidding, or losing control as a result of over steering. ESC becomes active when the driver loses control of their vehicle. The technology uses individual brakes to help to bring the vehicle safety back on track, without the danger of fish-tailing. ESC builds upon features such as anti-lock braking systems (ABS) and traction control to stabilise the vehicle when it changes direction from that intended by the driver. ESC is designed to compensate for driver misjudgments, aiding in the control of the vehicle during emergency manoeuvre. It cannot prevent all accidents, and should not be relied on instead of slow and careful driving practices.¹

¹ Nrspp.org.au. (2018). NRSPP Australia Get Around Vehicle Rollovers. [online] Available at: <https://www.nrspp.org.au/resources/get-around-vehicle-rollovers/> [Accessed 27 Sep. 2018].

² Edwards, N. (2011). Vehicle Roll-over. [online] Society of Operations Engineers. Available at: <https://www.soe.org.uk/downloads/1393601402-vehicle-rollover-guide.pdf> [Accessed 27 Sep. 2018].