

Another thing we know about trucks is that they can scare people in cars in front and alongside them. Stories abound of car drivers being tailgated and bullied by speeding truck drivers. On my return from a two-week visit to the US West Coast, I suddenly noticed how many trucks travel on our roads. I seemed to be surrounded by them. The amount of energy contained in a fully laden B-double, with a mass of about 62 tonnes, travelling at 100km/h, is 39 times more than that of a car travelling at the same speed. But consider this: The difference in energy between a car travelling at the same speed, although much slower, is only around 15 times that of a cyclist, although the cyclist would be much slower.

In a crash between a truck and a car, the bottom of the truck's bumper bar is usually at the height of a car driver's shoulder. The truck's bumper often overrides the main structural crush components of the car. The truck bumper hits the car driver or passenger directly in the head before scrunching up the car. If a car hits the rear of the truck, the tray is again at around head height. Decapitation of the passenger is sometimes the result. It's no wonder cars come out second best when involved in truck crashes. An Australian Design Rule has now been introduced requiring trucks to be fitted with front override barriers. But rear and side underrun barriers are not required, in spite of calls for their introduction more than 30 years ago.

A truck moving at 100km/h will travel about 70m before the driver begins to apply his brakes. The driver will then require another 100m of hard braking to stop the truck. A car with ABS brakes will also travel about 70m before the driver reacts and applies the brakes. But the car can stop in 50m and a car braking hard in front of a truck braking hard will either get pushed forward or overridden and crushed by the truck. So, why do we allow trucks and cars to travel freely in the same lanes? A truck crashing into the rear of another truck is surely much better from an energy-management and occupant-survivability point of view than a truck riding over the top of a car.

One of the fundamental energy-management rules used by crash experts is to separate big moving objects from little moving objects. Trucks should be kept separate from cars, as cars should be kept separate from pedestrians and cyclists.

In the UK, trucks must keep to the left lane and can only move to the adjacent lane to overtake another truck. They must also travel about 15km/h slower than cars. The rules also apply on the west coast of the United States. Why are we tolerating an unnecessary and increasing risk on our roads by allowing trucks to use all lanes?

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Car Restraints for the Child Over 12 Months

By Dr Sam Tormey, Medical Doctor and Research Fellow at OzProspect, a non-partisan policy think tank based in Melbourne.

This article was published originally under the title 'Restraining Reorder' in the June 2007 edition of 'Canberra's Child', a free monthly magazine published in the ACT for parents. See www.canberraschild.com.au.

Big changes are underway to the regulations concerning children's safety in cars. There have been mutterings for some years now about how we restrain children in our vehicles, but a tragic accident near Wollongong last year has prompted more urgency to the reform process.

Danielle and Noel Broadhead, like many of us, assumed that Australia would have some of the toughest safety laws in the world in this field. After all, we are well-recognised internationally for having extremely strict and effective air and road safety regulations. Our road safety campaigns have been used as a model example by many countries in how best to reduce accidents and road deaths. The Broadheads had followed the current law that states that all children under 12 months must travel in a dedicated infant capsule. As their children grew older, they purchased Australian Standards-approved booster seats. It was into one such seat that they strapped their 3 year-old daughter Isabelle for a short trip

down the mountain the day before Good Friday last year. Driving cautiously down the steep and winding road, Isabelle's mother was confronted by an oncoming truck which had veered into her lane. Despite her best efforts, her people-mover hit a tree at about 40km/hr, stopping the car from falling into a gully. Apart from the initial shock of the crash, Danielle and her two daughters (who were both in booster seats in the rear seat of the car) appeared to be uninjured. Tragically, Isabelle soon lost consciousness and died shortly afterwards.

It was the findings of the coroner that spurred the Broadheads into action. The coroner held that Isabelle died from massive internal injuries sustained from the adult seatbelt which restrained her within the booster seat. With the dreadful clarity of hindsight, it became apparent that Isabelle was not in an appropriate seat for her height and weight. Since then, her parents have embarked on a tireless campaign to prevent similar deaths.

Thanks in large part to their efforts, new regulations have now been drafted which set out a pathway of restraints from birth to seven years old. A draft proposal from the National Transport Commission (available at www.ntc.gov.au) states that children up to six months old must be restrained in a rearward-facing restraint with an inbuilt harness; then in a rearward or forward-facing restraint with an inbuilt harness until the age of four; and a forward-facing restraint with an inbuilt harness or booster seat from four to seven years old. As well, the Commission notes that " while the proposed laws cater for the majority of

children, a provision has been drafted to ensure a child is not required to use a restraint unsuitable for their size and weight (for example, a child who is too tall or heavy for the restraint)” .



Photo courtesy Kidsafe

Strapping the kids into the family car is one of the most risky experiences to which we ever subject them. About 3000 children under the age of 10 are injured in car crashes each year – about 500 of those kids are seriously injured or killed. Scientific research strongly suggests that we can reduce these figures by using more specific restraints tailored to the height and weight of our children. [Ed. See the peer-reviewed section of this Journal for the Brown and Bilston paper on this subject]. We have had good regulations as regards infant restraints (rear-facing capsule until age 6 months, thereafter forward-facing) although some countries take a far tougher line (in Sweden, for example, children must be in rear-facing restraints until aged 4 years). Toddlers and school-age children, however, are often in inadequate restraints and are graduating to adult seat-belts far too soon. Adult seatbelts are designed to safely restrain passengers who are at least 143cms tall, roughly equivalent to a 9 or 10 year old child. Research conducted by Monash University suggests that we discard booster seats at an average age of 5.6 years, which is 3 to 4 years too early for most children.

A quick look on the internet will reveal a bewildering array of safety devices. There are no less than five different types of restraint designed from birth up to 9 years old. Choosing the right restraint is quite complex, but there are many resources available to help – see links listed below. Until very recently, many of the best seats were not available in Australia, however the range is now improving.

To ensure safe travel for your child, aim to keep your baby in a rearward-facing infant restraint for the first year, rather than the recommended six months. After twelve months, choose a forward-facing child seat that has a six-point internal harness. Most of these chairs will serve your child until he or she is approximately five years old. The chair itself is anchored to the car seat by the adult belt and must be attached to an anchor

point on the frame of the car, either on the roof or behind the passenger seats. The six points of the harness comprise two shoulder straps, two hip straps and two crotch straps. The crotch straps in particular are crucial as they prevent “submarining” or slipping forward under the belts during an impact, a common cause of injury in poorly fitted restraints.

After five years of age (or about 18kg weight) inbuilt harnesses must not be used, and the child should be restrained by the adult seatbelt (hence the use of a booster seat to raise the child to the height at which the adult belt can be used as the restraint). A growing body of evidence suggests that it is safer to add a separate harness to booster seats. These are known as “H” harnesses and should be used in booster seats that already have a crotch clip. Booster seats must be securely fastened to the car and should have some side “wing” protection. The most common reason for changing from a booster seat to an adult belt alone is that the child has outgrown the seat. It is strongly suggested that parents consider a larger booster seat to take their child right up to age of nine years.

Do's and don'ts of child car restraints:



Photo courtesy Kidsafe

- Never use the front passenger seat to transport children. The back seat is safer.
- Keep children in rear-facing restraints for as long as practicable.
- Don't scrimp and save. Choose the best quality seat available, and be very cautious about second-hand seats if they are more than 10 years old, visibly damaged or have ever been involved in an accident.
- Never fit a booster seat to a lap-only adult belt (ie avoid the central rear seat in cars that have lap-only belts in this position)
- Ensure that there is a sash-guide adjacent to the shoulder to ensure the sash does not slip. The sash should go over the child's shoulder and must not be in contact with the neck.
- Straps attached to an anchor point on the frame of the car, either on the roof or behind the passenger seats, must be really tight. Lean into the seat to ensure there is no slack in the strap.
- Children in booster seats must be educated to never touch the seatbelt or fiddle with the buckle.
- Totally avoid booster “cushions” which have no back or side sections.
- Never fit a booster seat to a rear-facing car seat.

- If you are not confident that the seat is fitted correctly, ask an approved fitter for assistance. Most motoring organisations can provide a list of approved restraint fitters.
- Children grow quickly, so you need to regularly review whether your child is in the right seat.
- Always use the restraint, every single time, no matter how much a child protests.

Useful Links

www.belletoni.org.au this is the website for the advocacy organization set up by the parents of Isabelle Broadhead and Toni Perrin. Both children died in car accidents on the NSW South Coast. The website contains an excellent section on choosing restraints, including pictures.

www.isabelle-broadhead.memory-of.com is Isabelle's memorial website, containing her mother's moving story of the campaign for law reform and better resources for parents.

<http://www.vicroads.vic.gov.au/Home/RoadSafety/SeatbeltsChildRestraints/ChildRestraints/> there are similar websites from other state government transport departments offering useful advice.

http://www.mynrma.com.au/cps/rde/xchg/SID-3F5768EC-EB1A9ECA/mynrma/hs.xsl/child_and_infant_restraints.htm
This excellent piece includes some specific crash test data for certain brands of restraints.

<http://www.monash.edu.au/muarc/reports/muarc250.html> for those who wish to look at some leading Australian research in detail.

www.atsb.gov.au/pdfs/child_restraints.pdf is a simple guide to child restraints from the Australian Transport Safety Bureau.

Helicopter Rescue's Key Role in Reducing the Road Toll

by Geoff Horne

It has long been understood that providing medical care for road trauma victims within one hour of the crash can be critical in saving lives and highly beneficial in reducing the long term effects of injuries. This key period is sometimes referred to as "The Golden Hour". Considering the victims of major trauma who die, experience indicates that 2/3 will have suffered major head or other central nervous system injuries about which little could have been done to prevent the outcome. However, 2/3 of the remaining fatalities would be preventable if the casualty were to receive appropriate medical management in this "Golden Hour" (1). In recent years

improvements in response times by emergency medical personnel have been greatly assisted by the use of helicopters. As an example, for an ambulance to drive from Dunedin to Christchurch in New Zealand takes about 5 hours, whereas a helicopter, travelling at 120 nautical miles per hour can complete the journey in 1 hour 20 minutes. The typical modern rescue helicopter can be regarded as a fully equipped intensive care unit in the sky. It has everything you would find in the back of a well-equipped road ambulance, and more.

The aim of this article is to give an overview of the considerable extent of helicopter emergency medical and rescue services in

Australia and New Zealand. Some examples are given of the historical background, the current level of activities and the costs involved in this vital road safety service, in order to give the reader a feel for this comparatively new way of responding to road trauma and the beneficial impact it is having.



A Bell 412 Helicopter in service with Emergency Management Queensland