Transurban

NeuRA
Discover. Conquer. Cure.

Seat Belts and Seniors

Keeping drivers 75 years and older safe on our roads

Learn how to use your seat belt correctly to stay safe on the roads

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Welcome to the Transurban Road Safety Centre at NeuRA


Assoc Prof Julie Brown

Hi, I'm Associate Professor Julie Brown and together with my colleague Professor Lynne Bilston we conduct research in the Transurban Road Safety Centre based at NeuRA. The Centre was officially opened by the Hon. Brad Hazzard, Minister for Health and Medical Research. The aligned goals of NeuRA and Transurban are to reduce injury suffered on our roads.

Keeping people safe on our roads requires a holistic approach. This is the core idea of the safe system approach to road safety being universally adopted by road safety and injury prevention professionals.

At the heart of the safe system approach is the understanding that humans have inherent frailties, both in terms of how our bodies respond in crashes and in our behaviours. The entire road system must take these frailties into account.

This brochure is the first in a series of publications that aims to provide information for seniors about the correct use of existing crash protection systems in the car.

Associate Professor Julie Brown

Safe Mobility is Key to Healthy Ageing

Cars are a primary means of transport for senior Australians and are therefore critical for the independence and community engagement needed for healthy ageing.

On average, around 250 Australians aged over 65 die every year in car crashes, and more than 4,000 are hospitalised after a crash. Car crashes and injuries are often preventable, and occupant protection such as airbags, improved vehicle structure and seat belts have come a long way over the past 50 years. To get the most out of the occupant protection systems in modern cars, we need to understand the importance of using the seat belt and we must use it correctly.

Correct use of the seat belt means correct positioning or fit of the belt, as well as using the restraint in the way it was intended. As we age, our body shape changes, and these changes can often negatively impact seat belt fit. But many of these problems can simply be addressed by paying attention to how the seat belt is worn.

The goal of this brochure for senior drivers and passengers is to:

1. Review how seat belts work
2. Bring greater awareness to the importance of good seat belt fit
3. Deliver tips on how senior drivers and passengers can get the best seat belt fit possible.

Drivers 70+ years account for 14% of driver fatalities.

Injury risk is nine times higher in drivers over 85 years.

There is a high rate of seat belt fit problems amongst those over 70 years.

Mondern Cars Provide High Levels of Protection in a Crash

The three main features of modern vehicles that work to keep people free from injury in crashes are the vehicle structure, airbags and the seat belts. The vehicle structure and the airbags will work in a crash in the way they are designed to work regardless of any action by drivers and passengers. However, the seat belt will only be effective if it is worn and will be most effective if worn correctly.

To get the most out of the crash protection provided in your car, here are the top five things you should know:

1. Seat belts are highly effective and should **always** be worn
2. Seat belt positioning is important to get best possible protection
3. Use sash belt height adjusters to make sure sash belt passes over the middle of the collarbone
4. Position the lap belt low, in contact with thighs and below any belly fat
5. If having issues with comfort when using the seat belt or travelling in the car, seek advice about possible adjustments you can make to the seat belt and vehicle seat in your car.

How Seat Belts Work

While the seat belt seems like a very simple innovation, it is a very effective piece of technology. It works by effectively tying an occupant to the vehicle, so that the occupant can make best use of the vehicle ride down.

This means the person will come to a stop over the longest distance possible thanks to the built-in crumple zones in the vehicle structure. This also prevents ejection and minimises the likelihood of contact with the vehicle interior.

But in doing its job, the seat belt also applies a force to the occupant's body. So, the seat belt is designed to apply this load to the strongest parts of the person's body – the collarbone, breast bone and bones of the pelvis.

A seat belt's purpose is to:

1. Make use of the vehicle ride down
2. Prevent ejection
3. Prevent contact with vehicle interior
4. Apply a force to the strongest parts of the body skeleton.

Importance of Seat Belt Fit and Position for Optimal Protection

Seat belts apply a load to the body in a crash, so it's really important that they fit well and are positioned so that the sash passes over the mid shoulder. The lap portion of the belt should sit low on the pelvis, in contact with the upper thighs.

As we get older our body shape changes and achieving good belt positioning might need more attention. In our research we have seen that only about a third of older people have good seat belt positioning. Many people have the seat belt positioned too close to their neck or too high on their abdomen and many people have both these problems.

Seat Belt Fit in Drivers 75+ Years

Here is a guide to making sure you attain good seat belt fit in your car so it is positioned in exactly the right way. It was designed to protect you by using the strongest parts of your body – your bones.

You want to make sure that the seat belt is very low touching your thighs so that is positioned over the hip bones as opposed to higher up on your belly where critical organs are.

You want to make sure the shoulder belt sits across the collarbone midway between the neck and the shoulder.

The belt should also run diagonally across your chest.

It is also critical to make sure that the belt is snug.

When you put on your seat belt, first be sure to push the lap belt down as low as possible, so it touches your thighs. Then check to make sure the shoulder belt is across your collarbone. And pull the belt so it is snug across your body.

Seat belt height adjusters

Many seat belts have height adjusters on the column behind your window that will allow you to adjust the belt to make it fit just right. If you have trouble finding this adjuster, check your vehicle's user manual, or contact the vehicle manufacturer or car dealer.

Having your belt low across your lap, high across your collarbone, and snug means you have positioned the belt the way it was designed for maximum protection.

Seat belts positioned too close to the neck are associated with increased discomfort. One of the most serious errors those who experience discomfort make is repositioning the seat belt away from the strong parts of the body. Placing the sash belt behind the back or under the arm can cause serious injuries in a crash because the seat belt is no longer applying the crash forces to the strongest parts of the human body.

Watch out for poor belt positioning

Don't reposition your seat belt just because it feels uncomfortable. Look for ways to make adjustments to improve comfort.

Positioning a sash belt under arm or behind back increases likelihood of serious injury in a crash.

Aged drivers who do not use height adjusters are twice more likely to experience poor seat belt fit and report discomfort using seat belts.

About the Transurban Road Safety Centre

NeuRA and Transurban are committed to road safety and alleviating the significant impact of death and injury on our roads.

The Transurban Road Safety Centre at NeuRA provides researchers the opportunity to study a number of growing trends on Australian roads. These include aged driver and passenger safety, motorcyclist safety and motorcycle design, rear seat occupant safety and restraint systems.

The facility accommodates a crash test sled capable of reaching speeds of up to 64km/h and cameras that can record 1,200 frames per second. This enables tests that reflect serious crashes on the roads, combining state-of-the-art facilities with world-class research to expedite testing and outcomes to enable quicker translation of results into practice.

Take home message:

Seat belts are highly effective and should always be worn.

Seat belt positioning is important to get the best possible protection.

Use sash belt height adjusters to make sure sash belt passes over the middle of the collarbone.

Position the lap belt low, in contact with thighs and below any belly fat.

Additional Information
www.neuratalks.org

SEMINAR SERIES

WATCH ASSOCIATE PROFESSOR JULIE BROWN ON KEEPING SAFE IN CARS

Mobility is critical to independent and healthy ageing, and for most of us, cars are our primary means of getting around.

But older people are over represented in crash statistics, with death and casualty rates among older people almost as high as we see in the youngest people on our roads.

Every year, on average, we see about 250 Australians aged 65+ die as a result of a car crash, and more than 4,000 are hospitalised.

However, injuries that occur in car crashes can nearly always be prevented.

In her NeuRAtalk, Associate Professor Julie Brown explores preventing and minimising injury in a crash through improvements in vehicle design and structure, and improved safety technologies such as airbags and seat belts.

Visit neuratalks.org

"Elderly drivers and passengers are nine times more likely to be seriously injured in a crash than a younger person. Our goal is to provide guidance on correct use and fit of seat belts to make sure seniors get the best possible protection in their cars. Ultimately our aim is to ensure the safety, mobility and independence of senior Australians."

Associate Professor Julie Brow.

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