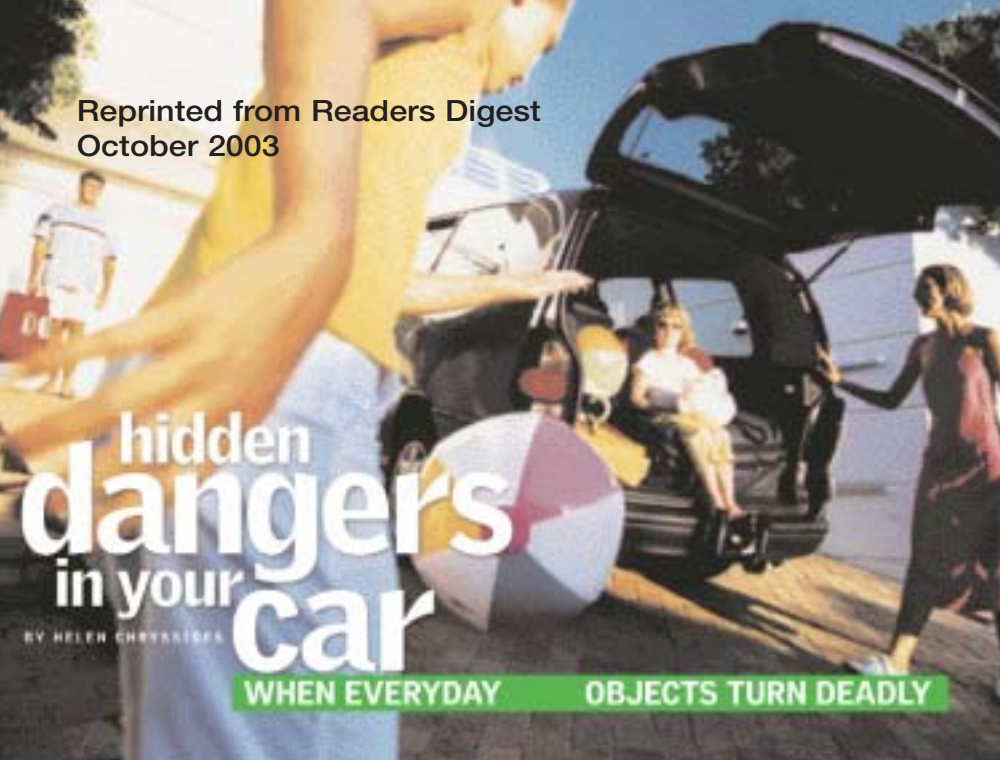


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hidden dangers in your car

WHEN EVERYDAY OBJECTS TURN DEADLY

BY HELEN CHRYSIDES

When Cassandra and Marten Clark pile their three kids aged six, five and two into their Nissan Patrol for a road trip, they're confident it will be a safe one. Marten, 33, has a spotless driving record and his car has the latest safety features.

But the Sydney residents rarely consider what's on the back-seat floor, or in the cargo area. While everyone is safely buckled in, they're surrounded by carry bags, toys, shoes and drink bottles, just to name a few items that might go along for the drive. The Clarks don't give them another thought.

And why would they? Millions of cars on the road today have crash-tested well and feature air bags and antilock brakes, giving the driver a sense of safety. But at the same time, people have turned their cars into second living rooms where hidden dangers abound, from a street directory on the dashboard to those weekend-project ceramic tiles at the back. It's a recipe for disaster because in a crash, any of these objects could turn into a deadly projectile.

The automotive industry has known about this for years. In 1986, General Motors engineers were warning that passengers and drivers could sustain serious injuries from unsecured cargo.

Early one morning in March 2000, 20-year-old John Edwards was driving on a road in Werribee, Victoria, in a Mazda sedan. Travelling with him were 17-year-old Aaron Rice and Darren Mockridge, 16. On a left-hand curve, Edwards lost control of the car, mounting a nature strip and hitting a tree. The car then skidded another nine metres before slamming into a power pole and rolling onto the driver's side.

Edwards and Rice both suffered severe injuries in the crash. Mockridge, who was sitting on the back seat with a mag wheel

and a tyre at his feet, was killed instantly when the tyre struck him in the head.

"Loose cargo is not something people think about when they get into the car," says Senior Sergeant Robert Cochrane, officer-in-charge of the Accident Investigation Squad in Brisbane. "Yet we see hundreds of crashes in which people are seriously injured or killed by loose objects."

It isn't just inanimate objects that pose a threat. Unrestrained passengers can be just as dangerous. Studies in Sweden, Britain and Japan show unbelted rear-seat passengers increase the risk of injury and death to others in the car. "An unrestrained person at the back becomes a deadly force," explains Masao Ichikawa, a researcher at the University of Tokyo.

Last year, Ichikawa's team studied nearly 74,000 two-car collisions. Researchers determined that risk of death for belted front-seat occupants rose 400 per cent when someone at the back was not wearing a seat belt. The conclusion: over 740 deaths and severe injuries could have been prevented in these crashes if back-seat passengers had simply buckled up.

According to the Australian Transport Safety Bureau, 1183 drivers and passengers died on our roads in 2001. There are no official statistics to show how many of these deaths can be attributed to loose cargo. However, a paper published in the Journal of the Society of Automotive Engineers estimated that every fifth or sixth vehicle involved in an accident is carrying a "significant" amount (more than ten kilos) of unrestrained cargo. In 2001 alone, therefore, loose objects may have contributed to some 236 fatalities.

The stuff that people carry around in their cars is mind-boggling. Sergeant Iain Shepherd of Hobart police recalls a driver who had stacked 936 bricks in the back of his station wagon. "When he lost control of

his car on a bend, the bricks slid forward and crushed him to death," Shepherd says.

A more common culprit is holiday luggage. In 1991, three elderly NSW women were on a driving holiday in Victoria when their station wagon drifted to the wrong side of the road and crashed into an embankment. Sergeant Peter Bellion of Victoria Police's Major Collision Investigation Unit estimated they were travelling at just 40 kilometres an hour. "With that type of impact the occupants typically survive, albeit with serious injuries," he says. In this case, all three women died, crushed by eskies and suitcases stowed in the back of the vehicle.

The list of potential projectiles goes on: steering-wheel locks, golf clubs, tool boxes, umbrellas, strollers, groceries. Another problem: stereo speakers attached with nothing but wire. "In a collision, the wires snap and the speakers continue on like missiles," says Senior Sergeant Mel Ainsworth of the Western Australia Police Service's Major Crash Investigation Section. The solution? Fasten them with screws. In the right circumstances, even the most benign object can become deadly. One Queensland woman died when she was struck in the head by a two-kilo pot of honey.

Extreme force.

How do unrestrained items become so dangerous? It's pure physics. When your car comes to a sudden halt in a collision, an object that's not battened down continues moving forward at the same speed and with a force several times its actual weight. So that two-kilo street directory sitting on the parcel shelf can hit the back of your head with the equivalent weight of 160 kilos, says Stuart Newstead, senior research fellow at the Monash University Accident Research Centre in Melbourne.

Even the family pet can be lethal. Iain Shepherd once attended a crash in which a large dog in the back had catapulted forward and killed a front-seat occupant. And the animal itself can be killed or seriously injured. "I've seen dogs with car-accident injuries ranging from dismembered limbs to a broken neck," says Evan Kosack, a veterinarian from Lennox Head, NSW.

The rising popularity of four-wheel drives, minivans, station wagons and hatchbacks all lacking a standard cargo boot may be part of the problem. For thousands of drivers, everything goes into one open compartment. Also many have split rear seats that fold down to accommodate long items. The locks on these seats are designed to hold them in place during an accident, but not withstand the exaggerated force of a heavy load behind them. "For back-seat passengers, they can be a tragedy waiting to happen," says Grad Zivkovic, an Adelaide-based automotive design engineer

One afternoon in April 1993, South Australian couple Paul and Michelle Wood buckled their three-year-old daughter, Sheena, into her booster seat and five-year-old son, Tristan, into the car seat alongside in the rear of their Ford Laser hatchback. Second-hand computer equipment weighing 26 kilos was in the luggage compartment.

Just east of Millicent on the Princes Highway, they ran into the back of a tip-truck. Paul sustained a broken nose, Michelle a fractured hip. But the children, correctly seated and appropriately restrained, fared much worse. The computer equipment shot through the latched split back seat, knocking Sheena's booster seat from under her, causing whiplash that fractured her spine and made her a mild quadriplegic. Tristan cannoned forward against his seatbelt, causing abdominal injuries so severe that he died seven weeks later.

"A lot of people don't think about what actually happens in a crash," says Cochrane. "A collision outside the car will be followed by collisions inside the car. They all have the potential to kill."

Buckle Up?

One night in April 1999, three young people set off on an outing in a 1970s Chrysler Valiant. On a gravel road in Melbourne's outer southeast, the Valiant collided head-on with a Holden station wagon.

Everyone survived the crash except Cristal Boulton. The heavily pregnant 17-year-old had been sitting in the Valiant's front passenger seat. When the cars collided, an unrestrained passenger seated behind slammed into Cristal's seat, flinging Cristal's head against the dashboard. She and her unborn baby died soon after.

Says Peter Bellion, who investigated the accident: "We'll never know for sure, but there's a good chance Cristal would be alive today if she and the person in the back had been wearing seat belts."

A passenger hit by another occupant can suffer severe head trauma, a broken neck or spine. If the front passenger is pushed harder into the seat belt, it could result in deep bruising of the internal organs. A rear passenger could ram into the back of the front seat, collapsing it and crushing or asphyxiating someone in front. In essence, a front-seat passenger becomes a crude air bag for the person seated behind.

Most Australians comply with the compulsory seat-belt laws. But given everything we know about how seat belts save lives, why do some people still fail to buckle up? One reason, according to the NSW Roads and Traffic Authority, is that they don't think they're at risk of a crash if the trip is short, or the road is quiet, or they perceive themselves to be good drivers. Others simply forget, or just never got into the habit.

Good Thinking.

Back in 1987, when Grad Zivkovic was working as an automotive engineer with Telstra, his boss drew his attention to an article in a staff magazine pointing out that many drivers of Telstra fleet vehicles had been killed or injured by flying cargo in accidents. To prevent such tragedies, Zivkovic and his boss developed a crash-tested cargo barrier – a cage separating the cargo and passenger areas. The following year, cargo barriers were installed in 300 Telstra vehicles. Other businesses in Australia and overseas soon followed suit.

Zivkovic was subsequently employed by Adelaide-based company Milford Industries, which started designing and promoting cargo barriers for private use. Today Milford sells barriers to suit some 200 makes of vehicle and exports all over the world. Says general manager Nigel Smalls: "A cargo barrier is like an insurance policy."

Just ask Vicki Melonas of Canberra. Four years ago, she fitted her station wagon with a cargo barrier. A regular vendor at the city's craft markets, she carried all her wares, along with a collapsible table and chairs, in the back of the car. "I knew it wasn't safe driving around with nothing between me and all that stuff," Melonas says.

Less than a year later, her 19-year-old son, Adam, an apprentice chef, was driving the car to Melbourne to start a new job. He fell asleep at the wheel on the Hume Highway, slamming into a gum tree. The 100-kilo plus load at the back – including chef's knives, suitcases and a stereo – hurtled forward and created a huge bow in the cargo barrier.

"When the police knocked on my door at two in the morning, they said, 'Your son's in hospital' not 'Your son's dead,'" says Melonas. "A cargo barrier saved my son's life."

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