

OPTIMAL HEALTH UNIVERSITY™

Presented by Katie Gravesen, DC

What You Should Know About Automobile Air Bags

Global statistics support the overall benefit of air bags — when used properly. At the same time, however, the chiropractic community wants patients to be aware of certain dangers associated with air bags — specifically injuries that affect the musculoskeletal system. Dr. Gravesen urges patients to use these life-saving devices, but to do so safely. Read on to learn how to do just that.



Air Bags: No Excuse Not to Buckle Up

While air bags save lives, they are no substitute for seat belts. The two safety devices were designed to work in tandem.

Research shows that buckling up is more important than air bags for overall safety. A massive study of all passenger-vehicle crashes in the United States from 1990 through 2000, which included 51,031 driver-passenger pairs in the same vehicle, found that “air bags reduced the risk of death by about eight percent, whereas seat belts reduced the risk of death by 65 percent.” (*Br Med J* 2002;324:1119.)

All Air Bags Are Not Created Equal

Differences among air-bag designs, according to the Insurance Institute for Highway Safety (IIHS), include deployment direction or path, crash sensor design/location, minimum deployment threshold, bag mounting location/folding pattern/shape, venting pattern and inflator output. “All of these design parameters influence air-bag performance, which automakers and air-bag suppliers are continuously working to optimize.” (IIHS.)

How Do Your Air Bags Rate?

Consumers with vehicles sold in the US and Canada can visit www.iihs.org and check out how their air bags

measure up. The Australian New Car Assessment Program (ANCAP) offers Australians a similar rating program when they click on “motoring” at www.mynrma.com.au. And the National Agency for Automotive Safety and Victim’s Aid (NASVA) keeps drivers in Japan up-to-date on air bags at www.nasva.go.jp/mamoru/en/. Dr. Gravesen encourages patients to investigate how their air bags rate.

Look for Side Air Bags Too

According to the IIHS, air bags that protect the chest and abdomen reduce deaths by ten percent. Peripheral air bags with head protection, however, reduce deaths by 45 percent during side-door impact. “More than 9,000

people are killed in side crashes each year and head injuries are a leading cause of death.” (*Med Econ* 2003;80:10.)

Keep Your Distance

“Despite the overall protective effect of air bags, they can cause fatal and non-fatal injuries if the driver’s head, neck, chest or arms are too close to the deploying airbag.” (*Br J Ophthalmol* 2001;85:640.)

Drivers should have ten inches (25 cm) of space between the center of the steering column and their chest.

Tips for Safe Air-Bag Use From Katie Gravesen, DC

- ☞ Sit no closer than ten inches away from the steering column.
- ☞ Wear a secure seat belt at all times.
- ☞ Position hands at “nine” and “three.”
- ☞ Don’t allow children less than four feet tall to ride in the front seat.
- ☞ Ban rear-facing infant or child seats in the front passenger side of a car with an air bag.
- ☞ Replace your deployed air bag with a factory model — not one from a salvage yard.

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According to researchers in England, “Air bags have been advocated as a supplemental restraint system. However, their deployment can cause injury particularly if the driver is of short stature, unrestrained or out of position within the vehicle.” (*Ann R Coll Surg Engl* 2004;86:149-55.)

Tilting the steering wheel down and raising the seat up will allow most drivers — even those under five feet, four inches — to “sit at least ten inches from the steering wheel and still drive comfortably. Some cars have telescoping steering wheels or [extended] foot pedals that can help with this.” (*Medical Update* 2000;24:1.)

Special Concerns for Kids

If a child is less than four feet tall, industry experts warn against letting him or her sit in the front seat of a car with air bags, even if these diminutive passengers are secured by a seat belt. The danger is especially great in older cars with “first-generation” side air bags.

Even the new side air bags pose a risk to children, according to the American Academy of Pediatrics. While these new devices improve safety for adults in side-impact crashes, improperly restrained children seated near a side air bag may be at risk for serious injury. On its Web site, the Academy urges parents to check their vehicle’s owner’s manual to see what it says about children and side air bags.

When to Disable an Air Bag

As a general rule, it is unlawful to disable an airbag. Governments do, however, make exceptions in rare cases when it may be safer for drivers and passengers to have these devices deactivated.

Hands on the Wheel

Remember being taught in driver’s education class to keep your hands on the steering wheel at “ten” and “two?” Well, this standard position can result in broken wrists when air bags deploy. If you have an air bag, some experts advise positioning your hands at “nine” and “three” with thumbs resting on top of the wheel.

After reviewing the cases of 25,464 accident victims, researchers in Virginia concluded that “an analysis of the cases indicated that occupants exposed to an air bag deployment were statistically more likely to sustain a severe upper-extremity injury [like broken wrists] than those occupants not exposed to an airbag deployment.” (*Am J Emerg Med* 2003;21:100-5.)

The most dangerous hand position, however, appears to be an under-hand grasp of the wheel turned 90 degrees. This posture resulted in the highest number of injuries (*Annu Proc Assoc Adv Automot Med* 2002;46:45-62).

Eyes Are Vulnerable

Although air bags reduce deaths, they can also cause injury to the facial skeleton and the eye (*Emerg Med J* 2003;20:490).

Eye injuries related to air bags include corneal abrasion and laceration, retinal hemorrhage and retinal detachment.

When researchers from the Helsinki University Eye Hospital studied 300 eye-injury cases resulting from air-bag deployment, they concluded that drivers and passengers have a 2.5 percent chance of having an eye injury. Of that number, only 0.4 percent is at risk of a severe eye injury if an air bag deploys (*Optician* 2003:1).

The study also revealed that wearing glasses didn’t increase injury and actually helped protect the eyes from air-bag chemicals. German researchers recently noted that sodium azide and sodium hydroxide, both of which are dispersed upon deployment of an air bag, can cause chemical burns when they contact skin (*J Craniomaxillofac Surg* 2004;32:35-7).

There is one group, however, who is more vulnerable to air-bag induced eye injury. Patients who have undergone radial keratotomy (RK) for the correction of moderate myopia are at an increased risk for corneal rupture. While RK is a probable risk factor for corneal rupture by air-bag impact, serious injury is rare (*Br J Ophthalmol* 2001;85:640).

And, those who opt for the increasingly popular Laser-Assisted *In Situ* Keratomileusis (LASIK) vision-correction surgery are at an increased risk of air-bag complications.

A Big Bang

The sound of an air bag deploying is often associated with that of a gunshot. Drivers and passengers experience diminished hearing that can last from a few hours to several days (*Acta Otorhinolaryngol Belg* 2003;57:177-81).

Post Deployment

If you or members of your family are involved in a motor-vehicle accident, call our office immediately and schedule an appointment. As your partners in health, we will do everything we can to see you as soon as possible.

Blunt trauma to the thoracic (chest) area of the body can result in a myriad of injuries, including restriction or misalignment of spinal bones (vertebrae). This common condition, known as *vertebral subluxation*, is linked with a myriad of health concerns, such as carpal tunnel syndrome, headaches, backaches, infantile colic and ear infections.

Chiropractors correct vertebral subluxations with safe and gentle maneuvers called *chiropractic adjustments*.

The bottom line? Anyone involved in a car accident — particularly children — should have a complete chiropractic evaluation. Your doctor understands the traumas associated with various accident scenarios and restraining devices. A complete checkup will not only address immediate concerns, but also reduce the likelihood of future complications.

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