

SUVs and pickup trucks: Critical safety concerns

What to consider when buying your next vehicle

Safety is a key aspect of any vehicle buying decision, but it's not very easy to assess on your own. Some buyers believe they need a large vehicle, such as an SUV or pickup, to protect them in the event of an accident. Other buyers worry about the higher incidents of rollover accidents involving pickup trucks and large truck-based SUVs.

In fact, there are several factors to consider when weighing the overall safety of a vehicle. Here we'll highlight the various issues you should consider and where to go to find additional information.



CRASH CONFORMITY
Many new SUVs are being designed with lower bumpers for improved compatibility with cars.

CRASH PROTECTION

The insurance industry and the federal government each perform several crash tests to simulate how a vehicle would perform in a real-world crash.

The Insurance Institute for Highway Safety (IIHS) tests vehicles in an offset frontal crash at 40 mph, a more common type of head-on collision. In the offset-crash test, only the portion of the vehicle in front of the driver hits a barrier. This test challenges the car's structural integrity and its ability to protect the area around the driver without collapsing. IIHS rates vehicles Good, Acceptable, Marginal, and Poor.

The National Highway Traffic Safety Administration (NHTSA) crashes vehicles head-on into a solid wall at 35 mph. This is a good test of how well the car's safety belts and air bags protect occupants. It rates the vehicles on a scale of one to five stars; NHTSA performs this test on most of the vehicles on the market.

IIHS also conducts side-crash tests that are more severe than NHTSA's. It simulates a passenger car being hit in the side by a typical truck or SUV at 38.5 mph. Results of IIHS crash tests are available at www.hwysafety.org.

NHTSA assigns star ratings to cars based on a side crash at 38.5 mph, but hit in a lower section than in the IIHS test. NHTSA safety ratings are available at www.safercar.gov.

Cars with side-curtain air bags that cover the windows and protect passengers' heads have consistently been the best performers in both the NHTSA and IIHS side-crash tests.

Access our crash-test results of specific models tested by *Consumer Reports* in our [vehicle profiles](#) (available to [subscribers](#)).

VEHICLE COMPATIBILITY

In a crash, the higher bumper on many taller vehicles, such as SUVs and trucks, hits a typical passenger car above the car's bumper line and crumple zone, exerting its force into weaker portions of the smaller vehicle and inflicting greater damage. To help reduce this incompatibility, many SUVs are being redesigned with lower, more compatible bumpers.

Automakers recently announced voluntary plans to design SUVs and pickup trucks in ways that will make them less dangerous to occupants of passenger vehicles. The upcoming changes are intended to lessen the chances that larger vehicles will ride over car bumpers in a collision.

A January 2006 study by the IIHS outlined the benefits of these plans, while comparing fatality rates among crashes. IIHS analysis showed that car-driver death rates were significantly lower in front and side crashes with SUVs and pickups that already met these design commitments. Further, in front-to-front collisions between cars and vehicles with low bumper, the fatality risk was 18 to 21 percent lower for crashes with SUVs and 9 to 19 percent lower for crashes with pickups. Those figures are for car drivers using seat belts, but without seat belt use, the risk drops to 2 to 3 percent for SUVs and 3 to 4 percent for pickups. This data suggest that seat belt use is critical in front-end crashes.

In front-to-side collisions, the risk reduction was 47 to 48 percent for car crashes with SUVs and 1 to 9 percent with pickups. (For this comparison, death rates weren't computed for unbelted car drivers, because safety belts are not as effective in side impacts).

These statistics show that these new compatibility standards will save more lives each year. Automakers are expected to comply by the 2010 model year.

ROLLOVER RESISTANCE

Perhaps the SUV safety issue that has garnered the most attention is rollover. According to NHTSA, SUVs have a rollover rate that is three times that of passenger cars. NHTSA provides rollover ratings for SUVs and cars, available at www.safercar.gov. It looks at two factors and combines the results into a statistical probability that a vehicle will roll over in an accident.

The first is called the Static Stability Factor (SSF). The SSF compares a vehicle's track width with its center of gravity. The numbers range from about 1.0 for an SUV to 1.5 for a sports car. The other is the Road Edge Recovery test, a quick left-right turn that simulates a driver overcorrecting the steering in an emergency. A vehicle that tips onto two wheels in the test has a greater chance of rolling over. *CR* does not recommend any vehicle that tips up in this test.

NHTSA rates vehicles from one to five stars based on the combined test results. One star indicates a rollover risk of 40 percent or more in a single-vehicle accident. Five stars indicate a risk of 10 percent or less.

NHTSA's rollover ratings among vehicles in the dynamic test ranged from a low risk of 12 percent chance of a rollover for the Nissan Quest to a 34 percent chance for the Ford Explorer Sport Trac 2WD. SUVs ranged from 13 to 24 percent; pickups from 15 to 30 percent; and minivans from 12 to 17 percent. Passenger cars ranged from 7 to 15 percent.

A January 2006 NHTSA report found that among vehicles that rolled over, midsized SUVs have the highest occupant fatality rate followed by pickup trucks. In 2004, the rate of fatal crashes when a rollover occurred was 9.29 for SUVs and 6.72 for pickup trucks per 100,000 registered vehicles.

Rollover resistance is mainly a matter of physics. For a given track width, a taller vehicle has a higher center of gravity, which makes it more top-heavy than one that sits lower. Also, vehicle design, including suspension and tires, affects stability as well. In a situation where a vehicle is subjected to strong sideways forces, such as in a sudden cornering maneuver, it's easier for a taller vehicle to roll over. During normal circumstances drivers rarely encounter such strong forces, but an emergency can happen at any time without warning. A rollover becomes a danger in several types of situations, such as during an accident-avoidance maneuver, taking a corner too fast for conditions, and in the event of a tire blowout.

In our testing, *Consumer Reports* has found that an electronic stability control system can significantly improve a vehicle's emergency-handling capabilities and help keep a vehicle from getting into a situation where it will roll over. Stability control, which is called different names depending on the automaker, senses when a vehicle begins to slide or skid in a turn and selectively applies individual brakes to correct the situation, keeping the vehicle on its intended path. It's especially helpful in slippery conditions or when a vehicle exceeds its handling limits due to an emergency situation. Stability control is highly recommended by *CR's* auto experts.

A few SUVs, notably those made by Ford and Volvo, also use technology that senses a rollover and inflates side-curtain air bags as a rollover starts. But if the roof collapses, the protection offered by the roll canopy is of little value.

ROOF CRUSH

One of the main reasons vehicle occupants are injured or killed in rollover accidents is that the vehicle's roof collapses or deforms enough to cause a head injury. Every new vehicle, including SUVs and trucks, must pass NHTSA's roof-crush requirement. In the tests, a metal plate is pressed down against the roof at an angle. Under the current law, the roof cannot crush in more than five inches when the plate is pressed down with a force equal to 1.5 times the vehicle's weight.

NHTSA has proposed a new regulation that would increase the force roofs must withstand to 2.5 times the vehicle weight. Yet some safety advocates believe that neither the current standard nor the new proposal is strong enough to protect occupants. The agency states that more than 60 percent of the vehicles they have tested currently meet the improved standard. Joan Claybrook, president of the consumer advocacy group Public Citizen, says the new standard should require roofs to withstand at least 3.5 times the vehicle's weight.

BLIND ZONES

The height of SUVs and pickup trucks creates large blind zones below the rear window and the hood. According to Kids and Cars, which works to improve child safety around cars, some 90 children die each year when drivers, sometimes parents, back over them while they are hidden in vehicles' blind zones. *Consumer Reports'* measures the blind zones of every vehicle we test. (See our report on [vehicle blind spots](#)). To check the size of the blind zone yourself, sit in the drivers' seat while a friend holds a hand at about waist level. Have the person walk back until you can see the hand through the rear window. This will indicate how large the blind zone really is.

Some SUVs and minivans are now available with a rear-view video camera. *Consumer Reports'* testing has shown that when used regularly, these can be effective in reducing backover accidents.