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The Mitsubishi Endeavor can safely carry a maximum of 970 pounds. That means that if you have four 190-pound adults onboard, you can only load up 210 pounds of cargo.

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Car-based crossover SUVs like the Cadillac SRX help reduce the rollover risk by virtue of their lower center of gravity and road-biased handling.

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The addition of stability control gives the truck-based Toyota 4Runner a wider safety net in potential emergency situations.

Driving Tips

Cargo Weight and Rollovers: Know the Limits of Your SUV

By [Nick Kurcewski](#)
 Date Posted 12-02-2004

New vehicle segments, technology and safety legislation — along with commonsense driving advice — can go a long way toward insuring that the worst does not occur when you're behind the wheel of a sport-utility vehicle. A few years ago it seemed that every commercial for an SUV included a group of hard-bodied 20-somethings set to conquer the wilderness. They high-fived their way through whitewater rapids, forests and the occasional desert with kayaks, mountain bikes and backpacks scattered inside — and on top of — their vehicle. However, in the real world of bulky baby seats and traffic jams, these scenes of off-road machismo make as much sense as a Good Humor truck at the North Pole.

SUVs appeal to consumers because of their greater cargo capacity and perceived go-anywhere capability. Compared to typical sedans and station wagons, it seems logical that a larger 4WD vehicle would offer both these advantages with few tradeoffs. This is despite the fact that many SUVs have a payload capacity (how much weight they can carry) that is considerably less than what buyers assume. Once an SUV is overloaded, the chance of a rollover increases dramatically.

The taller height of an SUV (which provides a commanding view of the road that many consumers love about their SUVs) also raises the chance of a rollover. Due to their higher center of gravity, SUVs are more prone to roll over than passenger cars that ride closer to the ground. Overloading an already top-heavy SUV not only raises the risk of rollover; it also places added stress on the brakes and can cause a tire blowout — especially if the tires are improperly inflated. While SUV sales are still strong, automakers have taken some steps toward improving the segment with a mix of new models and advanced technology.

One of the newest trends in the sport-utility market is the emergence of crossover vehicles, or what the media sometimes refers to as "soft-roaders." This new segment is becoming increasingly popular with people who enjoy the style and space of an SUV, but are happy to trade rock-climbing capability for more carlike manners. Vehicles in this segment include the [Cadillac SRX](#), [Chrysler Pacifica](#), [Nissan Murano](#) and [Toyota Highlander](#). New to the game are the [Chevrolet Equinox](#), [Ford Freestyle](#) and [BMW's X3](#). These vehicles sit lower to the ground, permitting easier entry and exit with the added benefit of a lower center of gravity. Crossover vehicles are tuned for on-road handling and ride comfort, and are usually based upon an existing car platform. For example, the Toyota Highlander shares much of its structure with the [Camry](#), whereas the Freestyle has the same underpinnings as the new [Ford Five Hundred sedan](#). Not surprisingly, this segment has fared better in rollover studies compared with traditional truck-based SUVs.

The options sheet can play a large role in SUV safety, too. New

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advances in tire technology can help limit the chances of a serious accident occurring due to a flat. Honda has equipped its [Odyssey minivan](#) with Michelin's PAX system, a run-flat tire capable of meeting the unique design constraints of trucks and SUVs. Run-flat technology is not new, having been used in sports cars for a number of years. Until now, the technology was limited to high-performance vehicles with low-profile tires. Once punctured, a traditional run-flat tire relies on its stiffer sidewall construction to keep the tire's form and to keep it on the wheel rim. The PAX system can be used on more comfort-oriented tires, with larger sidewalls — like those found on pickups, minivans and SUVs. If a puncture occurs, the tire has a special seal, keeping it connected to the wheel rim, along with a plastic ring located within the tire itself. This ring can support the deflated tire for up to 125 miles and up to 55 mph. Possible downsides to the PAX system include the non-standard wheel and tire sizes it uses — which could make replacement tires both costly and hard to find.

Another advancement in preventing accidents due to rollover and/or tire blowout is stability control. This system goes by many different names: GM's StabiliTrak, Mercedes' ESP (Electronic Stability Program), Ford's AdvanceTrac, Toyota's VSC (Vehicle Skid Control) and so on. No matter the name, nor the manufacturer, the systems do pretty much the same thing. Computer sensors spring into action upon sensing that the vehicle is about to go out of control. These sensors can cut engine power and brake individual wheels to help the driver regain control and keep the vehicle heading in the intended direction. The hoped for end result being that car and owner escape unscathed from a situation in which — without the aid of a quick-thinking computer — a crash would have been inevitable.

Crossover vehicles and safety developments aside, there is a good deal of new legislation pertaining to SUV safety that has been making news. As of September 2004, the National Highway Traffic Safety Administration (NHTSA) requires the tire label on the doorjamb of a vehicle to say what the maximum combined weight of occupants and cargo is for all vehicles with a GVWR (Gross Vehicle Weight Rating) of 10,000 pounds or less. Until now, it had been up to the manufacturer to publish the maximum load carrying capacity either in the owner's manual or somewhere inside the vehicle. Without this vital piece of information, SUV owners could unknowingly overload their vehicle and increase their chances of a rollover accident.

Industry watchdog *Consumer Reports* publishes the recommended load capacity of many vehicles. For example, a [2004 Mitsubishi Endeavor XLS with all-wheel drive](#) is listed as having a load capacity of 970 pounds. With five 194-pound people onboard, this maximum would soon be reached — with nary a kayak or mountain bike onboard. The fact that a [2004 Mitsubishi Galant sedan](#) can safely tote up to 825 pounds goes some way toward disproving the myth that all SUVs can carry significantly greater loads compared to sedans.

Of course, load capacity is only one factor that might cause an SUV with an already high center of gravity to roll over. Equally important is making sure that the tires are properly inflated. Go with the tire-pressure specifications shown in the doorjamb or owner's manual, not the tire's sidewall. Take into account that tire pressure increases after the vehicle has been driven and the tires are warm. Underinflated tires heat up more quickly and become more prone to failure. Checking the tire pressure is made much easier if you buy a digital tire gauge — sold in many auto supply stores for less than \$20. The NHTSA has proposed making tire-pressure sensors standard equipment on all vehicles sold in the United States. Though tire-pressure monitor rulemaking is still underway, many manufacturers are already fitting them to minivans, trucks and SUVs.

A quick check of the tire pressure is also a good time to give each tire a simple visual inspection. Tire tread depth can be checked by using a small, inexpensive gauge. As on any vehicle, the tread on the tires should be uniform and have a depth of more than 1/16 of an inch. Any signs of damage, such as cuts or bulges in the sidewall, should be rectified immediately. Be sure to follow the tire rotation schedule in the owner's manual. Fitment of aftermarket wheels can also contribute to excessive tire wear and dramatically change an SUV's ride and handling dynamics. It's worth checking with the manufacturer before fitting a set of wheels that you think might be outside the tolerance of your SUV's suspension system.

Lastly, no matter what SUV you buy or what optional electronic devices it might have, the best way to prevent a rollover begins with smart driving. You don't have to be Mario Andretti to understand the safe way to drive an SUV. In fact, the best tips are simple common sense.

Generally speaking, an SUV is heavier and takes longer to stop than a passenger car. Quick steering inputs that are possible in a car could lead to big trouble in an SUV. Say, for example, that a vehicle suddenly stops in the path of the SUV you are driving. The panic reaction is to cut the steering wheel to avoid the obstacle, then to cut it back to return to your lane. This back and forth motion sets up the potential for a rollover because the higher center of gravity is swung first to one side, then turned to the other side with increasing force.

Some precautions you can take may seem obvious; don't tailgate the car in front of you, signal your intentions and always be scanning the road ahead and to the sides. The same good habits one should use while driving any vehicle apply — pay attention to what you're doing, be aware of what's going on around you and use your head. Remember that having four-wheel drive does not help when it comes time to stop or turn quickly. During a snowstorm, you might have better motive traction with a four-wheel-drive SUV when pulling away from a stoplight. However, once you have to stop or turn suddenly, be aware that an SUV's considerable weight and higher center of gravity are working against you.

Before loading your SUV up with friends, suitcases and pet Pug, know exactly how much weight can be safely transported. Visually inspect the tires and make sure the tire pressure meets the manufacturer's recommendation. When you're ready to buy your next vehicle, check out all the options on the market, such as electronic stability control, run-flat tires or perhaps a car-based crossover vehicle. Above all, be sensible, on the road and on the showroom floor, and choose the vehicle that best suits your specific needs and weight-carrying requirements.

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