

News

Electronic Stability Control A Lifesaver, Study Finds

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About half of the 28,000 fatal passenger vehicle crashes that occur each year involve a single vehicle. A new study finds that equipping cars and SUVs with electronic stability control (ESC) could reduce the number of such fatal crashes by more than half.

Stability Control



The study by the Insurance Institute for Highway Safety (IIHS) echoes [similar findings](#) released last month by the U.S. National Highway Traffic Safety Administration (NHTSA).

The NHTSA study found a 35 percent reduction in single-vehicle crash risk for cars and a 67 percent reduction for SUVs. Fatal single-vehicle crashes were reduced about 30 percent (cars) and 63 percent (SUVs).

Together these studies indicate that widespread application of ESC could save more than 7,000 lives per year. If all vehicles on U.S. roads had ESC, it might prevent as many as 800,000 of the 2 million or so single-vehicle crashes that occur each year.

ESC is an extension of antilock brake technology, which has speed sensors and independent braking for each wheel. For ESC, additional sensors continuously monitor how well a vehicle is responding to a driver's steering input. These sensors detect when a vehicle is about to stray from the driver's intended line of travel (that is, lose control), which usually occurs in high-speed maneuvers or on slippery roads.

When it detects loss of control, stability control brakes individual wheels automatically to keep the vehicle under control.

"For most drivers ESC isn't likely to activate frequently. For example, it won't prevent most of the fender-bender crashes that occur so often in stop-and-go traffic," says Susan Ferguson, Institute senior vice president for research. "ESC is designed to help a driver in the relatively rare event of loss of control at high speed or on a slippery road."

When a driver enters a curve too fast, for example, the vehicle may spin out of control. But with ESC, automatic braking is applied to help keep the vehicle under control."

The new study indicates that ESC reduces crash risk and is most effective in reducing fatal single-vehicle crashes. This isn't surprising because such crashes typically are characterized by drivers losing control of their vehicles, often on curves.

Specific findings of the Institute study include:

- ESC reduced fatal single-vehicle crash risk by about 56 percent.

- The fatality risk reduction for crashes involving two or more vehicles (17 percent) wasn't statistically significant.
- ESC reduced the risk of all single-vehicle crashes (fatal and nonfatal) by 41 percent.

To establish these results, Institute researchers analyzed police-reported crashes in 7 states over 2 years as well as data from the federal Fatality Analysis Reporting System. The researchers analyzed the crash rates (all crashes, injury crashes, and fatal crashes per registered vehicle year) of cars and SUVs with ESC as standard equipment versus prior versions of these vehicles when they weren't equipped with ESC or ESC was available only as an

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option (very few vehicles were equipped with this option).

The comparison vehicles were restricted to earlier models that were physically identical to the ESC-equipped vehicles in all respects except for ESC.

Automakers are equipping their vehicles with various versions of ESC and marketing the systems under various names. The Institute's study included Audi, Mercedes, and Volkswagen vehicles with Electronic Stability Program; BMW and Jaguar vehicles with Dynamic Stability Control; Lexus and Toyota vehicles with Vehicle Stability Control; Cadillacs with StabiliTrak; Chevrolets with Active Handling; Volvos with Dynamic Stability and Traction Control; and Acuras with Vehicle Stability Assist.

Not all ESC systems are identical. The hardware is similar, but there are variations in the way the systems are programmed to respond once loss of control is detected. Some ESC systems activate sooner than others or slow a vehicle more quickly when a driver begins to lose control. However, data were insufficient for Institute researchers to compare the effectiveness of different versions of ESC. Nor were data sufficient to compare ESC effectiveness in cars versus SUVs.

"SUVs typically have high single-vehicle rollover rates, and these crashes usually involve drivers losing control of their vehicles so it wouldn't be surprising if SUVs benefited more from ESC. This will be a subject of future study when more vehicles are equipped with ESC and data are more plentiful," Ferguson said.

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