

INSURANCE INSTITUTE FOR HIGHWAY SAFETY

NEWS RELEASE

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NEW CRASH TESTS: TOYOTA CAMRY & RAV4 EARN TOP RATINGS IN FRONT & SIDE TESTS; DODGE CALIBER IMPROVES OVER NEON

ARLINGTON, VA — New crash test results reflect the improvements manufacturers continue to make in protecting people in front and side crashes, but protection in rear crashes lags. The Insurance Institute for Highway Safety recently evaluated four cars and two small SUVs (see attached ratings), updating results for vehicle groups the Institute tested earlier.

The vehicles tested include the 2007 Dodge Caliber (small car); 2006 Kia Optima and 2007 Toyota Camry (midsize moderately priced cars); 2006 Lincoln Zephyr (midsize luxury car); and 2006 Hyundai Tucson and 2006 Toyota RAV4 (small SUVs). Front, side, and rear evaluations were conducted for all except the Optima, which was not tested for protection in side impacts. Kia is changing this car to improve its side performance, and the Institute will test it later this year.

"Results show that automakers are moving quickly to improve side impact protection," says Institute president Adrian Lund. "They're responding to our crash test by making side airbags with head protection standard in more models."

All six vehicles that were tested this time around except the RAV4 have standard side airbags with head protection. (The RAV4's good rating for protection in side crashes applies only to the 2006 model with optional side airbags.) Toyota will make side airbags standard in the 2007 RAV4.

None of the six vehicles earned the Institute's *TOP SAFETY PICK* award. The two vehicles that earned top ratings in front and side tests were rated too low (marginal) for protection in rear impacts.

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"Now it's the norm for vehicles to earn good ratings in the frontal test, and performance in the side test is rapidly improving," Lund says. "But protection against neck injury in rear-end crashes still needs a lot of work. Front and side crashes usually are more serious, but rear impacts are more common and the neck injuries that result can be debilitating. This is the most common injury reported in motor vehicle crashes."

Camry is a top performer in the side impact test: The redesigned Camry is one of only six car models the Institute has tested to earn a perfect score in the side test. The Institute rates the risk of injury separately for the head, neck, torso, pelvis, and legs. Vehicle side structure also is rated. The Camry is good in all of these categories. For the 2007 model year, this car has standard curtain-style side airbags designed to protect people's heads plus separate side airbags to protect the torsos of front-seat occupants.

Caliber improves compared with Neon: The Caliber replaces the Dodge Neon, one of the worst performing small cars in the Institute's front and side tests. The new model is a much better performer. The Caliber is rated good overall for frontal crash protection, while the Neon was marginal. The Caliber also is improved in the side test. It's rated marginal overall, compared with a poor rating for the old Neon. Head protection made the biggest difference.

"In the side test of the Neon, the barrier hit the heads of both the driver and rear passenger dummies," Lund points out. "Massive head injuries would have been likely for a driver and possible for a passenger in a similar real-world crash. In contrast, the heads of both dummies in the Caliber were cushioned by the side curtain airbags, which are standard. Side crashes often are serious, but head protection afforded by side airbags can mean a much better chance of surviving."

Side airbags to protect the torsos of front-seat occupants will be added as optional equipment in the Caliber later in the 2007 model year, and Lund says he expects these airbags to improve this car's performance.

Tucson improves too: Another vehicle to improve is the Hyundai Tucson, which also is sold as the Kia Sportage. The previous generation of this vehicle, sold only as the Sportage through the 2002 model year, was rated marginal in the frontal test. The new model is rated acceptable. High forces recorded on the dummy's left leg and right leg and foot kept it from earning a good rating. This vehicle with standard side airbags also is acceptable in the side test.

Lincoln Zephyr isn't competitive: This is the only luxury model tested this time around. It's the only midsize luxury car rated acceptable for frontal crash protection. "This is not a bad rating," Lund says, "but all of the other midsize luxury cars we've tested get good ratings for frontal crash protection, so the Zephyr isn't competitive in its class for safety. Plus several less expensive midsize cars earn better overall ratings than the Zephyr. This shows you don't have to buy a luxury car to get good crash protection, and spending more money doesn't necessarily mean you'll get more safety."

Ford says changes are under way to improve the frontal crash performance of the Zephyr and its less expensive sibling, the Ford Fusion. The automaker has requested testing again later this year.

How vehicles are evaluated: The Institute's frontal crashworthiness evaluations are based on results of 40 mph frontal offset crash tests. Each vehicle's overall evaluation is based on measurements of intrusion into the occupant compartment, injury measures recorded on a Hybrid III dummy in the driver seat, and analysis of slow-motion film to assess how well the restraint system controlled dummy movement during the test.

Each vehicle's overall side evaluation is based on performance in a crash test in which the side of the vehicle is struck by a barrier moving at 31 mph. The barrier represents the front end of a pickup or SUV. Ratings reflect injury measures recorded on two instrumented SID-II dummies, assessment of head pro-

tection countermeasures, and the vehicle's structural performance during the impact. Injury measures obtained from the two dummies, one in the driver seat and the other in the back seat behind the driver, are used to determine the likelihood that a driver and/or passenger in a real-world crash would have sustained serious injury to various parts of the body. The movements and contacts of the dummies' heads during the crash also are evaluated. Structural performance is based on measurements indicating the amount of B-pillar intrusion into the occupant compartment.

Rear crash protection is rated according to a two-step procedure. Starting points for the ratings are measurements of head restraint geometry — the height of a restraint and its horizontal distance behind the back of the head of an average-size man. Seats with good or acceptable restraint geometry are tested dynamically using a dummy that measures forces on the neck. This test simulates a collision in which a stationary vehicle is struck in the rear at 20 mph. Seats without good or acceptable geometry are rated poor overall because they cannot be positioned to protect many people.

**End of 4-page news release on crashworthiness ratings
1-page attachment: front, side, rear ratings of 6 vehicles**

ATTACHMENT: CRASHWORTHINESS EVALUATIONS P.1 OF 1

	FRONT EVALUATION	SIDE EVALUATION	REAR CRASH PROTECTION
<p>NEW FRONT, SIDE, & REAR TESTS DODGE CALIBER Small car WITH STANDARD HEAD CURTAIN SIDE AIRBAGS front, side, & rear: 2007 models</p>	G	M	M
<p>NEW SIDE TEST TOYOTA CAMRY Midsize moderately priced car WITH STANDARD HEAD CURTAIN & FRONT TORSO SIDE AIRBAGS front, side, & rear: 2007 models</p>	G	G	M
<p>NEW FRONT & REAR TESTS KIA OPTIMA Midsize moderately priced car WITH STANDARD HEAD CURTAIN & FRONT TORSO SIDE AIRBAGS front & rear: 2006 models (mfg. after Sept. 2005)</p>	G	not tested	G
<p>NEW SIDE & REAR TESTS LINCOLN ZEPHYR Midsize luxury/near luxury car WITH STANDARD HEAD CURTAIN & FRONT TORSO SIDE AIRBAGS front: 2006 models (mfg. after Jan. 2006) side & rear: all 2006 models</p>	A	A	M
<p>NEW SIDE TEST TOYOTA RAV4 Small SUV WITH FRONT & SECOND ROW HEAD CURTAIN & FRONT TORSO SIDE AIRBAGS (OPTIONAL IN 2006; STANDARD IN 2007) front, side, & rear: 2006 models</p>	G	G	M
<p>NEW FRONT & SIDE TESTS HYUNDAI TUCSON KIA SPORTAGE Small SUV WITH STANDARD HEAD CURTAIN & FRONT TORSO SIDE AIRBAGS front, side, & rear: 2005-06 models</p>	A	A	P

GOOD	G
ACCEPTABLE	A
MARGINAL	M
POOR	P

FOR MORE DETAILED CRASHWORTHINESS EVALUATIONS, GO TO WWW.IIHS.ORG

FRONTAL RATINGS are based on performance in a 40 mph frontal offset crash test into a deformable barrier. **CAUTION:** Frontal ratings cannot be compared across vehicle type and weight categories because the kinetic energy involved in the frontal test depends on the speed and weight of the test vehicle, and the crash is more severe for heavier vehicles. Given equivalent frontal ratings for heavier and lighter vehicles, the heavier vehicle typically will offer better protection in real-world crashes.

SIDE RATINGS are based on performance in a crash test in which the side of the vehicle is struck by a moving deformable barrier with a front end that represents the front of a typical SUV or pickup. The moving barrier strikes the vehicle at 31 mph in a perpendicular impact. **NOTE:** Side ratings can be compared across vehicle type and weight categories while frontal ratings cannot.

REAR CRASH PROTECTION RATINGS are based on a two-step evaluation. In the first step restraint geometry is rated. Seats with good or acceptable geometric ratings then are subjected to a dynamic test. Seats with head restraints rated marginal or poor, based on geometry, aren't tested because they cannot protect taller occupants.