

# INSURANCE INSTITUTE FOR HIGHWAY SAFETY

## NEWS RELEASE

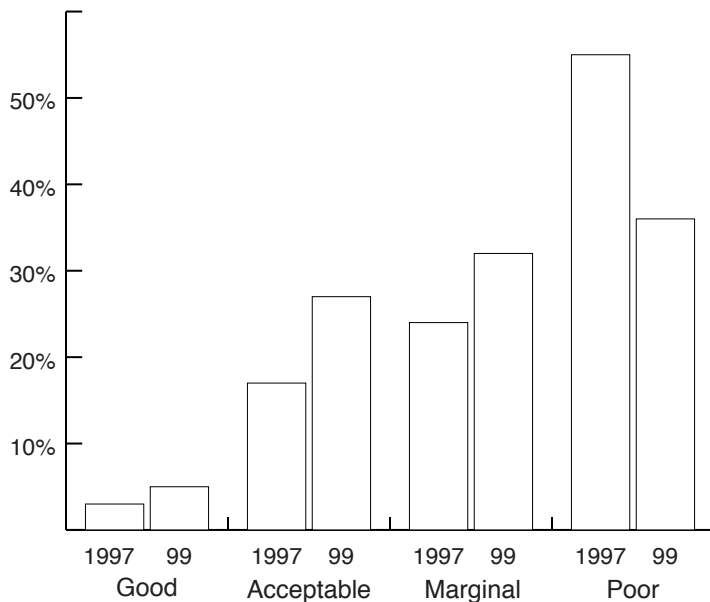
June 3, 1999

### HEAD RESTRAINT DESIGNS ARE IMPROVED IN 1999 MODELS, BUT RESTRAINTS IN A THIRD OF ALL MODELS ARE STILL POOR

ARLINGTON, VA – The head restraints in about a third of all 1999 passenger vehicles are poorly designed. Only 1 in 20 of the 1999 cars, pickups, and utility vehicles earns a good rating for head restraint design (see attached list). Disappointing as these findings are, they represent an improvement since 1997 models were evaluated. Then more than half of all passenger vehicles were equipped with head restraints rated poor. Both sets of evaluations were conducted by researchers

at the Insurance Institute for Highway Safety.

**Distribution of  
head restraint evaluations,  
1997 and 1999 passenger vehicles**

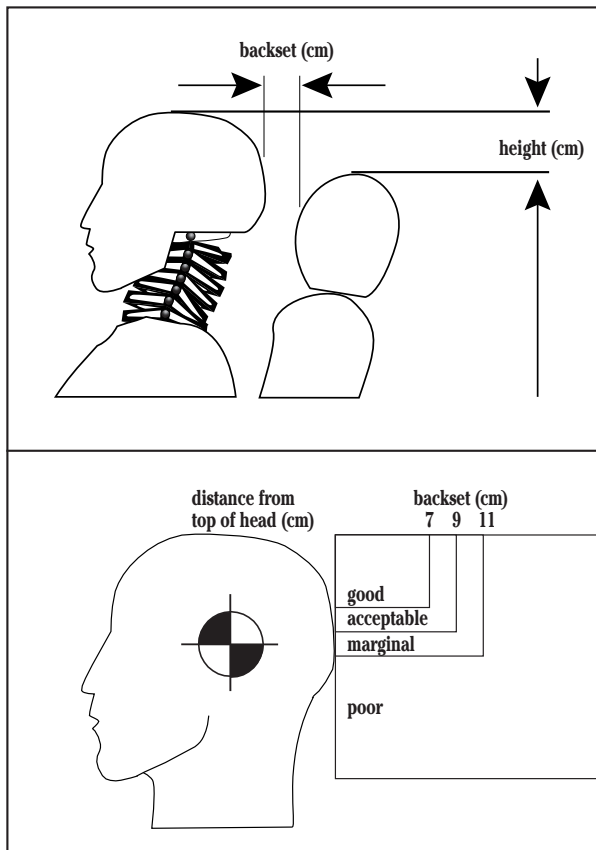


“Some head restraints are getting better, but not nearly enough progress has been made,” says Institute senior vice president Adrian Lund. “The manufacturers can easily turn their poor designs into more effective head restraints. They just have to make this a priority. The few automakers who have done so, mainly Volvo and Saab, are leaving the rest of their competitors behind.”

— MORE —

Cars with head restraints rated good include the BMW Z3 Coupe, Saab 9-3 and 9-5, Volkswagen New Beetle (some seat options), and Volvo C70/S70/V70 and S80 models. Among pickups, only the Chevrolet S10 and GMC Sonoma have good restraints. And among utility vehicles, only the Chevrolet Blazer (some seat options) and Mitsubishi Montero earn good ratings.

The necessary first step toward an effective head restraint – one that reduces the risk of whiplash injury in rear-end crashes – is a good geometric design. “A good design means the restraint is positioned behind and close to the back of an occupant’s head so it’s where it needs to be to provide protection in a rear-end crash,” Lund explains.



#### What determines good head restraint geometry:

Two criteria determine good head restraint geometry. One is height — the top of a restraint ideally should be as high as the top of an occupant’s head. The second criterion is backset, or the distance between the back of an occupant’s head and the front of the restraint.

The Institute rates head restraints good, acceptable, marginal, or poor based on these two criteria. The rating for a fixed head restraint is straightforward — the zone into which its height and backset place it also defines its rating in relation to an average-size male. The rating for a restraint that adjusts in height and/or backset depends on whether it locks in the adjusted po-

sition. If it doesn't, its rating is defined by height and backset in the down and/or rear position. If an adjustable restraint does lock, its height and backset are measured in both the down position and the most favorable locked position. The final rating is the better of these, except that if the adjusted rating is used it's downgraded a category because so few motorists adjust their restraints. The exceptions are some Mercedes models, which aren't downgraded because they adjust automatically, and Saabs because Institute research indicates these restraints are effective even in the down position.

**Ratings based on geometry predict head restraint effectiveness in real crashes:** Separate Institute research indicates that the head restraint evaluations based on geometry (see attached list) are good predictors of how well people will be protected in rear-end crashes. A study of more than 5,000 insurance claims for rear-end crashes found that drivers of vehicles with head restraints rated good are significantly less likely to claim neck injuries than drivers in vehicles with poor restraints.

**End 3-page release on head restraint evaluations**  
**3-page attachment: ratings for 186 vehicle series**  
**Internet: [www.highwaysafety.org](http://www.highwaysafety.org)**

## 1999 PASSENGER CARS

Acura Integra	<b>A</b> <b>M</b> depends on seat	Chrysler Sebring	<b>A</b> <b>M</b> depends on seat
Acura NSX	<b>A</b>	Chrysler 300-M	<b>M</b>
Acura 3.5 RL	<b>M</b>	Chrysler Concorde	<b>A</b> <b>M</b> depends on seat
Acura 2.3 CL	<b>P</b>	Chrysler Town & Country	<b>M</b> <b>P</b> depends on seat
Acura 3.2 TL	<b>P</b>	Chrysler LHS	<b>M</b>
Audi A4	<b>A</b>	Chrysler Cirrus	<b>P</b>
Audi A6	<b>A</b>	Dodge Intrepid	<b>A</b> <b>M</b> depends on seat
Audi A8	<b>M</b>	Dodge Avenger	<b>M</b>
BMW Z3 coupe	<b>G</b>	Dodge Caravan/Grand Caravan	<b>M</b> <b>P</b> depends on seat
BMW Z3 roadster	<b>A</b>	Dodge Stratus	<b>M</b> <b>P</b> depends on seat
BMW M roadster	<b>A</b>	Dodge Neon, 1999 models	<b>M</b>
BMW 5 series	<b>A</b>	Dodge Neon, 2000 models	<b>P</b>
BMW 3 series	<b>M</b> <b>P</b> depends on seat	Ford Windstar	<b>A</b> <b>P</b> depends on seat
BMW 7 series	<b>P</b>	Ford Contour	<b>M</b> <b>P</b> depends on seat
BMW M3 convertible	<b>P</b>	Ford Crown Victoria	<b>P</b>
Buick Century	<b>P</b>	Ford Escort	<b>P</b>
Buick LeSabre	<b>P</b>	Ford Mustang	<b>P</b>
Buick Park Avenue	<b>P</b>	Ford Taurus	<b>P</b>
Buick Regal	<b>P</b>	GMC Safari	<b>P</b>
Buick Riviera	<b>P</b>	Honda Accord	<b>A</b> <b>M</b> depends on seat
Cadillac Catera	<b>M</b>	Honda Prelude	<b>M</b>
Cadillac DeVille	<b>M</b>	Honda Civic	<b>M</b> <b>P</b> depends on seat
Cadillac Eldorado	<b>P</b>	Honda Odyssey	<b>M</b> <b>P</b> depends on seat
Cadillac Seville	<b>P</b>	Hyundai Elantra	<b>A</b>
Chevrolet Corvette	<b>A</b>	Hyundai Sonata	<b>A</b>
Chevrolet Prizm	<b>A</b>	Hyundai Tiburon	<b>M</b> <b>P</b> depends on seat
Chevrolet Venture	<b>A</b> <b>P</b> depends on seat		
Chevrolet Malibu	<b>M</b> <b>P</b> depends on seat		
Chevrolet Astro	<b>M</b>		
Chevrolet Camaro	<b>P</b>		
Chevrolet Cavalier	<b>P</b>		
Chevrolet Lumina	<b>P</b>		
Chevrolet Metro	<b>P</b>		
Chevrolet Monte Carlo	<b>P</b>		

Legend	
<b>G</b>	GOOD
<b>A</b>	ACCEPTABLE
<b>M</b>	MARGINAL
<b>P</b>	POOR

list continues . . . . .

## 1999 PASSENGER CARS (cont'd)

Hyundai Accent	<b>P</b>	Mitsubishi 3000GT	<b>M</b>	Saab 9-3	<b>G</b>
Infiniti G20	<b>M</b>	Mitsubishi Diamante	<b>M</b>	Saab 9-5	<b>G</b>
Infiniti I30	<b>M</b>	Mitsubishi Galant	<b>M</b>	Saturn, all models	<b>M P</b> <small>depends on seat</small>
Infiniti Q45	<b>P</b>	Nissan Maxima	<b>A M</b> <small>depends on seat</small>	Subaru Legacy	<b>M</b>
Jaguar XJ8	<b>M</b>	Nissan Altima	<b>M</b>	Suzuki Esteem	<b>M</b>
Jaguar XJR	<b>M</b>	Nissan Sentra	<b>M</b>	Toyota Camry/Solara	<b>A</b>
Jaguar XK8 convertible	<b>P</b>	Nissan Quest	<b>M P</b> <small>depends on seat</small>	Toyota Corolla	<b>A</b>
Kia Sephia	<b>M</b>	Oldsmobile Alero	<b>A M</b> <small>depends on seat</small>	Toyota Celta	<b>A M</b> <small>depends on seat</small>
Lexus ES 300	<b>A</b>	Oldsmobile Cutlass	<b>P</b>	Toyota Avalon	<b>A P</b> <small>depends on seat</small>
Lexus GS 300	<b>A</b>	Oldsmobile Silhouette	<b>M</b>	Toyota Sienna	<b>P</b>
Lexus LS 400	<b>A</b>	Oldsmobile 88	<b>P</b>	Volkswagen New Beetle	<b>G A</b> <small>depends on seat</small>
Lexus SC 400	<b>P</b>	Oldsmobile Aurora	<b>P</b>	Volkswagen Golf	<b>M P</b> <small>depends on seat</small>
Lincoln Continental	<b>P</b>	Oldsmobile Intrigue	<b>P</b>	Volkswagen Jetta	<b>M P</b> <small>depends on seat</small>
Lincoln Town Car	<b>P</b>	Plymouth Voyager/Grand Voyager	<b>M P</b> <small>depends on seat</small>	Volkswagen Passat	<b>M P</b> <small>depends on seat</small>
Mazda Protege	<b>M</b>	Plymouth Breeze	<b>P</b>	Volkswagen Cabrio	<b>P</b>
Mazda 626	<b>P</b>	Pontiac Grand Prix	<b>A P</b> <small>depends on seat</small>	Volkswagen Eurovan	<b>P</b>
Mazda Miata	<b>P</b>	Pontiac Grand Am	<b>M</b>	Volvo C70/S70/V70	<b>G</b>
Mazda Millenia	<b>P</b>	Pontiac Montana	<b>M</b>	Volvo S80	<b>G</b>
Mercedes E class	<b>A</b>	Pontiac Bonneville	<b>P</b>		
Mercedes S class	<b>A</b>	Pontiac Firebird	<b>P</b>		
Mercedes SL	<b>A</b>	Pontiac Sunfire	<b>P</b>		
Mercedes SLK	<b>A</b>	Porsche 911 convertible	<b>A</b>		
Mercedes CLK	<b>M</b>	Porsche Boxster	<b>A</b>		
Mercedes C class	<b>A M</b> <small>depends on seat</small>				
Mercury Cougar	<b>M P</b> <small>depends on seat</small>				
Mercury Grand Marquis	<b>P</b>				
Mercury Mystique	<b>P</b>				
Mercury Sable	<b>P</b>				
Mercury Tracer	<b>P</b>				
Mercury Villager	<b>P</b>				
Mitsubishi Mirage	<b>A</b>				
Mitsubishi Eclipse	<b>A M</b> <small>depends on seat</small>				

list continues .....

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## 1999 UTILITY VEHICLES

Acura SLX	<b>M</b>	Isuzu Trooper	<b>A M</b> depends on seat
Cadillac Escalade	<b>P</b>	Isuzu Rodeo	<b>M P</b> depends on seat
Chevrolet Tracker	<b>A</b>	Jeep Wrangler	<b>M</b>
Chevrolet Blazer	<b>G P</b> depends on seat	Jeep Cherokee	<b>M P</b> depends on seat
Chevrolet Suburban	<b>P</b>	Jeep Grand Cherokee	<b>P</b>
Chevrolet Tahoe	<b>P</b>	Kia Sportage	<b>A</b>
Dodge Durango	<b>P</b>	Land Rover Discovery II	<b>M</b>
Ford Expedition	<b>M P</b> depends on seat	Land Rover Range Rover	<b>A</b>
Ford Explorer	<b>P</b>	Lexus LX 470	<b>A</b>
GMC Jimmy	<b>A P</b> depends on seat	Lexus RX 300	<b>A</b>
GMC Suburban	<b>P</b>	Lincoln Navigator	<b>P</b>
GMC Yukon	<b>P</b>	Mercedes M class	<b>A</b>
Honda CR-V	<b>M</b>	Mercury Mountaineer	<b>P</b>
Honda Passport	<b>P</b>	Mitsubishi Montero	<b>G</b>
Infiniti QX4	<b>M</b>	Mitsubishi Montero Sport	<b>M P</b> depends on seat
		Nissan Pathfinder	<b>A M</b> depends on seat
		Oldsmobile Bravada	<b>P</b>
		Subaru Forester	<b>M P</b> depends on seat
		Suzuki Grand Vitara	<b>A</b>
		Toyota RAV4	<b>A</b>
		Toyota 4Runner	<b>M P</b> depends on seat

## 1999 PICKUPS

Chevrolet S10/S10 ext. cab	<b>G</b>
Chevrolet 3500 crew cab	<b>P</b>
Chevrolet Silverado 1500	<b>P</b>
Dodge Dakota club cab	<b>A</b>
Dodge Ram 1500	<b>M P</b> depends on seat
Ford F250	<b>M</b>
Ford Ranger super cab	<b>M</b>
Ford F150	<b>M P</b> depends on seat
GMC Sonoma	<b>G</b>
GMC Sonoma ext. cab	<b>A</b>
GMC Sierra 1500 ext. cab	<b>M</b>
GMC 2500	<b>P</b>
GMC 3500 crew cab	<b>P</b>
Mazda B series cab plus	<b>P</b>
Nissan Frontier king cab	<b>A</b>
Toyota Tacoma extra cab	<b>M</b>
Toyota Tacoma	<b>P</b>

### Legend

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