



Insurance Institute for
Highway Safety



Side Impact Crashworthiness Evaluation Weighting Principles for Vehicle Ratings

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988 Dairy Road
Ruckersville, VA 22968
+1 434 985 4600

iihs.org

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Components

The weighting scheme is comprised of ratings for the following components: vehicle structure, occupant head protection, and occupant head/neck, torso, and pelvis/left femur.

General Principles of Weighting System

The rating system is based on demerits, with every vehicle beginning with a good overall rating. The test is intended to determine if there are reasons to lower the rating. The demerit scheme that matches these principles is given in the table.

Weighting of Individual Components				
IIHS Crashworthiness Evaluation – Side Impact Crash Test				
Component	Rating			
	Good	Acceptable	Marginal	Poor
Vehicle structure	0	2	6	10
Driver				
Head protection	0	2	4	10
Head and neck	0	2	10	20*
Torso	0	2	10	20*
Pelvis and left femur	0	2	6	10
Passenger				
Head protection	0	2	4	10
Head and neck	0	2	10	20*
Torso	0	2	10	20*
Pelvis and left femur	0	2	6	10
Overall rating cutoffs	0-6	8-20	22-32	34+

*Poor rating to the head/neck or torso body regions will result in no better than a marginal overall rating.

The vehicle structure rating is intended to limit occupant compartment intrusion at the B-pillar, where occupants of stature different from the 5th percentile female dummy might be sitting. Because good dummy measures cannot indicate general good crashworthiness, a vehicle with a poor structure rating cannot be rated good overall and can only be rated acceptable with few indicated problems according to the dummy readings. A vehicle can be rated good overall with marginal structure only if all the dummy readings indicate good protection.

The head/neck and torso ratings are based on risk of life-threatening injuries and carry the most weight. Poor ratings for these vital body regions will result in no better than a marginal overall rating.

The pelvis and left femur ratings are based on risk of skeletal injury. Pelvis and femur fractures typically are not life threatening; however, pelvic fractures can lead to long-term disability due to permanent damage of the articulating surfaces in the hip joint and in some cases can be life-threatening.

The head protection rating receives about the same weight as the vehicle structure and pelvis/left femur rating categories. This rating category is intended to encourage head protection systems such as head airbags that can prevent potentially injurious head contacts with intruding objects outside the vehicle including other vehicles, trees, and poles.