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Motorcycles

"NHTSA estimates that helmets saved 1,829 motorcyclists' lives in 2008, and that 823 more could have been saved if all motorcyclists had worn helmets."

NHTSA has recently redefined their motorcycle terminology. The following terms will be used to define motorcycle occupants: a motorcycle rider is the operator only; a passenger is any person seated on the motorcycle but not in control of the motorcycle; and any combined reference to the "motorcycle rider" (operator) as well as the "passenger" will be referred to as motorcyclists. Prior NHTSA publications may not reflect this terminology.

In 2008, 5,290 motorcyclists were killed—an increase of 2 percent over the 5,174 motorcyclists killed in 2007. There were 96,000 motorcyclists injured during 2008.

Table 1
Motorcyclists Killed and Injured, and Fatality and Injury Rates, 1998–2008

Year	Fatalities	Registered Vehicles	Fatality Rate*	Vehicle Miles Traveled (millions)	Fatality Rate**
1998	2,294	3,879,450	59.13	10,283	22.31
1999	2,483	4,152,433	59.80	10,584	23.46
2000	2,897	4,346,068	66.66	10,469	27.67
2001	3,197	4,903,056	65.20	9,639	33.17
2002	3,270	5,004,156	65.35	9,552	34.23
2003	3,714	5,370,035	69.16	9,577	38.78
2004	4,028	5,767,934	69.83	10,122	39.79
2005	4,576	6,227,146	73.48	10,454	43.77
2006	4,837	6,678,958	72.42	12,049	40.14
2007	5,174	7,138,476	72.48	13,612	38.01
2008	5,290	–	–	–	–

Year	Injured	Registered Vehicles	Injury Rate*	Vehicle Miles Traveled (millions)	Injury Rate**
1998	49,000	3,879,450	1,262	10,283	476
1999	50,000	4,152,433	1,204	10,584	472
2000	58,000	4,346,068	1,328	10,469	551
2001	60,000	4,903,056	1,229	9,639	625
2002	65,000	5,004,156	1,293	9,552	677
2003	67,000	5,370,035	1,250	9,577	701
2004	76,000	5,767,934	1,324	10,122	755
2005	87,000	6,227,146	1,402	10,454	835
2006	88,000	6,678,958	1,312	12,049	727
2007	103,000	7,138,476	1,443	13,612	757
2008	96,000	–	–	–	–

*Rate per 100,000 registered vehicles
**Rate per 100 million vehicle miles traveled
– = not available.
Source: Vehicle miles traveled and registered vehicles—Federal Highway Administration
Fatalities—Fatality Analysis Reporting System (FARS), NHTSA
Injured—General Estimates System (GES), NHTSA

Table 2

Motorcycle Rider Fatalities by State, Helmet Use, and BAC, 2008

State	Total Motorcycle Riders Killed	Helmeted	Not Helmeted	Impaired Motorcycle Riders Killed (BAC=.08+)	BAC=.01+
	Number	Percent	Percent	Percent	Percent
Alabama	95	85%	15%	20%	27%
Alaska	8	50%	50%	35%	36%
Arizona	133	49%	51%	23%	32%
Arkansas	59	42%	58%	21%	37%
California	537	88%	12%	26%	30%
Colorado	88	33%	67%	30%	32%
Connecticut	50	37%	63%	34%	37%
Delaware	16	50%	50%	55%	63%
Dist of Columbia	7	86%	14%	29%	50%
Florida	523	52%	48%	33%	41%
Georgia	166	93%	7%	21%	25%
Hawaii	25	28%	72%	40%	49%
Idaho	29	62%	38%	22%	32%
Illinois	121	26%	74%	35%	47%
Indiana	119	24%	76%	28%	35%
Iowa	48	15%	85%	17%	22%
Kansas	43	26%	74%	43%	49%
Kentucky	93	40%	60%	24%	28%
Louisiana	76	59%	41%	29%	36%
Maine	18	24%	76%	17%	17%
Maryland	84	88%	12%	27%	31%
Massachusetts	41	97%	3%	22%	40%
Michigan	121	88%	12%	28%	35%
Minnesota	64	19%	81%	38%	44%
Mississippi	39	79%	21%	26%	32%
Missouri	102	77%	23%	31%	36%
Montana	32	40%	60%	31%	31%
Nebraska	19	84%	16%	39%	39%
Nevada	59	75%	25%	36%	42%
New Hampshire	29	38%	62%	22%	40%
New Jersey	78	87%	13%	21%	37%
New Mexico	45	4%	96%	31%	38%
New York	177	81%	19%	24%	30%
North Carolina	159	91%	9%	28%	38%
North Dakota	12	25%	75%	51%	51%
Ohio	194	30%	70%	32%	36%
Oklahoma	80	25%	75%	30%	32%
Oregon	43	98%	2%	30%	35%
Pennsylvania	227	49%	51%	32%	40%
Rhode Island	7	71%	29%	30%	30%
South Carolina	115	26%	74%	42%	53%
South Dakota	14	29%	71%	14%	21%
Tennessee	134	89%	11%	26%	31%
Texas	480	38%	62%	38%	46%
Utah	34	32%	68%	13%	15%
Vermont	7	100%	0%	1%	16%
Virginia	82	93%	7%	37%	46%
Washington	78	95%	5%	31%	43%
West Virginia	49	77%	23%	30%	31%
Wisconsin	79	23%	77%	47%	54%
Wyoming	17	41%	59%	22%	23%
United States	**4,955**	**59%**	**41%**	**30%**	**37%**
Puerto Rico	74	35%	65%	39%	52%

Note: Percent Helmeted based on fatalities with known helmet use.

An estimated 148,000 motorcyclists have died in traffic crashes since the enactment of the Highway Safety and National Traffic and Motor Vehicle Safety Act of 1966.

Motorcycles made up nearly 3 percent of all registered vehicles in the United States in 2007 and accounted for only 0.4 percent of all vehicle miles traveled.

Per vehicle mile traveled in 2007, motorcyclists were about 37 times more likely than passenger car occupants to die in a motor vehicle traffic crash and 9 times more likely to be injured.

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Table 3
Occupant Fatality Rates by Vehicle Type, 1997 and 2007

Fatality Rate		Motorcycles	Passenger Cars	Light Trucks
1997	Per 100,000 Registered Vehicles	55.30	17.81	15.23
	Per 100 Million Vehicle Miles Traveled	20.99	1.45	1.24
2007	Per 100,000 Registered Vehicles	72.48	12.06	12.34
	Per 100 Million Vehicle Miles Traveled	38.01	1.03	1.06
Percent Change, 1997–2007	Per 100,000 Registered Vehicles	31.07	-32.28	-19.00
	Per 100 Million Vehicle Miles Traveled	81.09	-28.76	-14.79

Note: 2008 registered vehicle and vehicle miles traveled data not available.

Per registered vehicle, the fatality rate for motorcyclists in 2007 was 6 times the fatality rate for passenger car occupants. The injury rate for motorcyclists was 0.7 times the injury rate for passenger car occupants.

In 2008, motorcyclists accounted for 14 percent of total traffic fatalities, 17 percent of all occupant fatalities, and 4 percent of all occupants injured.

Motorcycle Involvement in Crashes

In 2008, 2,554 (47%) of all motorcycles involved in fatal crashes collided with another type of motor vehicle in transport. In two-vehicle crashes, 77 percent of the motorcycles involved were struck in the front. Only 7 percent were struck in the rear.

Motorcycles are more likely to be involved in a fatal collision with a fixed object than are other vehicles. In 2008, 25 percent of the motorcycles involved in fatal crashes collided with fixed objects, compared to 19 percent for passenger cars, 14 percent for light trucks, and 4 percent for large trucks.

In 2008, there were 2,387 two-vehicle fatal crashes involving a motorcycle and another type of vehicle. In 41 percent (985) of these crashes the other vehicle was turning left while the motorcycle was going straight, passing, or overtaking the vehicle. Both vehicles were going straight in 666 crashes (28%).

"One out of four motorcycle riders in fatal crashes in 2008 were riding their vehicles with an invalid license."

NHTSA considers a crash to be speeding-related if the driver was charged with a speeding-related offense or if an officer indicated that racing, driving too fast for conditions, or exceeding the posted speed limit was a contributing factor in the crash.

In 2008, 35 percent of all motorcycle riders involved in fatal crashes were speeding, compared to 23 percent for passenger car drivers, 19 percent for light-truck drivers, and 8 percent for large-truck drivers.

Table 4
Motorcyclist Fatalities by Age Group, 1998 and 2008

Year	Age Group				Total
	<30	30–39	40+	Unknown	
1998	921	612	760	1	2,294
2008	1,614	987	2,687	2	5,290

Table 5
Motorcyclist Fatalities by Engine Size (cc), 1998 and 2008

Year	Engine Displacement				Total
	Up to 500	501–1,000	1,001–1,500	Other/Unknown	
1998	213	1,040	781	260	2,294
2008	257	2,185	1,757	1,091	5,290

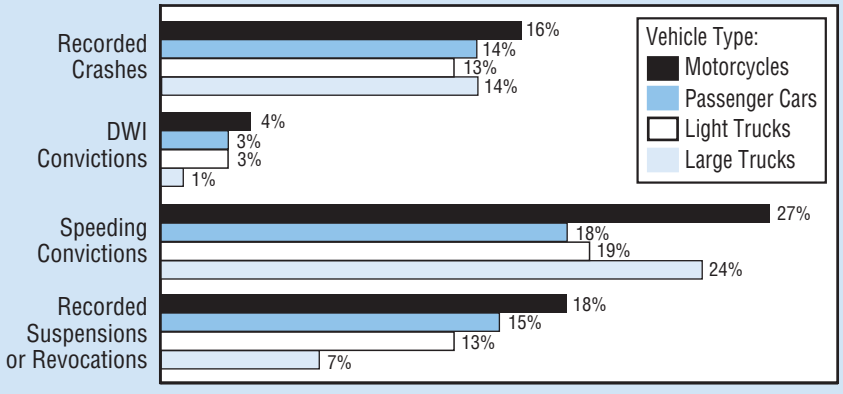
Licensing

One out of four motorcycle riders (25%) involved in fatal crashes in 2008 were riding their vehicles with invalid licenses at the time of the collision, while only 12 percent of drivers of passenger vehicles in fatal crashes did not have valid licenses.

Motorcycle riders involved in fatal traffic crashes were 1.4 times more likely than passenger vehicle drivers to have a previous license suspension or revocation (18% and 13%, respectively).

In 2008, 4 percent of the motorcycle riders involved in fatal crashes had at least one previous conviction for driving while intoxicated on their driver records, compared to 3 percent of passenger vehicle drivers.

Figure 1
Previous Driving Records of Drivers Involved in Fatal Traffic Crashes, by Type Of Vehicle, 2008



Note: Excluding all drivers with unknown previous records

Alcohol

In fatal crashes in 2008 a higher percentage of motorcycle riders had blood alcohol concentration (BAC) of .08 grams per deciliter (g/dL) or higher than any other type of motor vehicle driver. The percentages for vehicle riders involved in fatal crashes were 29 percent for motorcycles, 23 percent for passenger cars, 23 percent for light trucks, and 2 percent for large trucks.

In 2008, 30 percent of all fatally injured motorcycle riders had BAC levels of .08 g/dL or higher. An additional 7 percent had lower alcohol levels (BAC .01 to .07 g/dL).

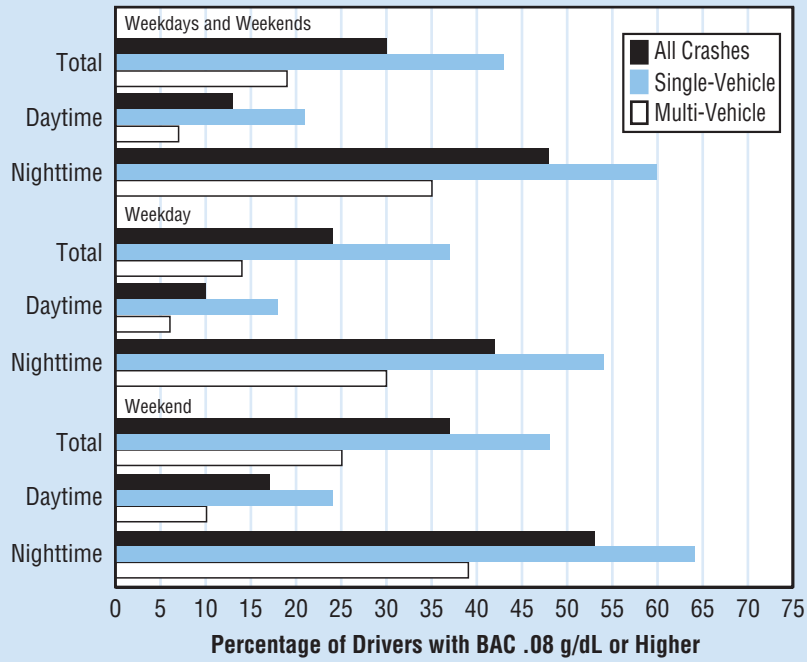
The percentage with BAC .08 g/dL or above was highest for fatally injured motorcycle riders among two age groups, 40–44 (41%) and 45–49 (41%) followed by the 35–39 (36%) age group.

Forty-three percent of the 2,291 motorcycle riders who died in single-vehicle crashes in 2008 had BAC levels of .08 g/dL or higher. Sixty-four percent of those killed in single-vehicle crashes on weekend nights had BACs of .08 g/dL or higher.

"Forty-three percent of motorcycle riders who died in single-vehicle crashes in 2008 had BAC levels of .08 g/dL or higher."

Figure 2

Percentage of Alcohol-Impaired Motorcycle Riders Killed in Traffic Crashes, By Time of Day, 2008



"In 2008, a higher percentage of motorcycle riders in fatal crashes had BAC levels of .08 g/dL or higher than any other type of driver."

Motorcycle riders killed in traffic crashes at night were nearly 4 times more likely to have BAC levels of .08 g/dL or higher than those killed during the day (48% and 13% respectively).

The reported helmet use rate for motorcycle riders with BAC levels .08 g/dL or higher killed in traffic crashes was 46 percent, compared with 66 percent for those with no alcohol (BAC = .00 g/dL).

Helmet Use and Effectiveness

NHTSA estimates that helmets saved the lives of 1,829 motorcyclists in 2008. If all motorcyclists had worn helmets, an additional 823 lives could have been saved.

Helmets are estimated to be 37-percent effective in preventing fatal injuries to motorcycle riders and 41-percent for motorcycle passengers.

"Helmets are estimated to be 37-percent effective in preventing fatal injuries to motorcycle riders."

This means for every 100 motorcycle riders killed in crashes while not wearing a helmet, 37 of them could have been saved had all 100 worn helmets.

According to NHTSA's National Occupant Protection Use Survey, a nationally representative observational survey of motorcycle helmet, seat belt, and child safety seat use, use of DOT-compliant helmets in 2008 stood at 63 percent, a gain from 58 percent in 2007.

Reported helmet use rates for fatally injured motorcyclists in 2008 were 59 percent for riders and 49 percent for passengers, compared with 59 percent and 47 percent, respectively, in 2007.

All motorcycle helmets sold in the United States are required to meet Federal Motor Vehicle Safety Standard 218, the performance standard which establishes the minimum level of protection helmets must afford each user.

In 2008, 20 States, the District of Columbia, and Puerto Rico required helmet use by all motorcyclists. Other States either required only a subset of motorcyclists to use helmets (such as those under age 18), or had no helmet requirement.

For more information:

Information on traffic fatalities is available from the National Center for Statistics and Analysis, NVS-424, 1200 New Jersey Avenue SE., Washington, DC 20590. NCSA can be contacted at 800-934-8517. Fax messages should be sent to 202-366-7078. General information on highway traffic safety can be accessed by Internet users at www.nhtsa.gov/portal/site/nhtsa/ncsa. To report a safety-related problem or to inquire about motor vehicle safety information, contact the Vehicle Safety Hotline at 888-327-4236.

Other fact sheets available from the National Center for Statistics and Analysis are *Overview, Alcohol, African American, Bicyclists and Other Cyclists*, *Children, Hispanic, Large Trucks, Occupant Protection, Older Population, Pedestrians, Race and Ethnicity, Rural/Urban Comparisons, School Transportation-Related Crashes, Speeding, State Alcohol Estimates, State Traffic Data,* and *Young Drivers.* Detailed data on motor vehicle traffic crashes are published annually in *Traffic Safety Facts: A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System.* The fact sheets and annual Traffic Safety Facts report can be accessed online at www.nrd.nhtsa.dot.gov/CATS/index.aspx.