U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
2009 Data

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Motorcycles

Definitions often vary across publications with respect to individuals on motorcycles. For this document, the following terms will be used: the motorcycle rider refers only to individual operating the motorcycle; the passenger refers to any person seated on, but not operating, the motorcycle; the motorcyclist is a more general term that refers to either the rider and/or passenger. NHTSA publications prior to 2007 may not reflect this terminology. For the purpose of this fact sheet the following vehicles are include in the definition of motorcycle: mopeds, scooters, two- or three-wheeled motorcycles, off-road motorcycles, scooters, mini bikes, pocket bikes, and all-terrain vehicles (ATV).

In 2009, 4,462 motorcyclists were killed—a decrease of 16 percent from the 5,312 motorcyclists killed in 2008. There were 90,000 motorcyclists injured during 2009.

"In 2009, 4,462 motorcyclists were killed—a decrease of 16 percent from the 5,312 motorcyclists killed in 2008."

Table 1
Motorcyclist Fatalities and Injuries and Fatality and Injury Rates, 2000-2009

Year	Fatalities	Registered Vehicles	Fatality Rate*	Vehicle Miles Traveled (millions)	Fatality Rate**
2000	2,897	4,346,068	66.66	10,469	27.67
2001	3,197	4,903,056	65.20	9,633	33.19
2002	3,270	5,004,156	65.35	9,552	34.23
2003	3,714	5,370,035	69.16	9,576	38.78
2004	4,028	5,780,870	69.68	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	21,396	24.18
2008	5,312	7,752,926	68.52	20,811	25.52
2009	4,462	7,929,724	56.27	20,800	21.45
Year	**Injuries**	**Registered Vehicles**	**Injury Rate***	**Vehicle Miles Traveled (millions)**	**Injury Rate****
2000	58,000	4,346,068	1,328	10,469	551
2001	60,000	4,903,056	1,229	9,633	625
2002	65,000	5,004,156	1,293	9,552	677
2003	67,000	5,370,035	1,250	9,576	701
2004	76,000	5,780,870	1,321	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	21,396	481
2008	96,000	7,752,926	1,238	20,811	461
2009	90,000	7,929,724	1,130	20,800	431

*Rate per 100,000 registered vehicles
**Rate per 100 million vehicle miles traveled
Source: Vehicle miles traveled and registered vehicles—Federal Highway Administration
Traffic Deaths—Fatality Analysis Reporting System (FARS), NHTSA
Traffic Injuries—General Estimates System (GES), NHTSA

In August 2011, starting with 2009 data, FHWA implemented an enhanced methodology for estimating registered vehicles and vehicle miles traveled by vehicle type. In addition, revisions were made to 2008 and 2007 data using the enhanced methodology. As a result, vehicle involvement rates may differ, and in some cases significantly, from previously published rates.

"Per vehicle mile traveled, motorcyclists are about 25 times more likely than passenger car occupants to die in a traffic crash."

In 2009, motorcyclists accounted for 13 percent of total traffic fatalities, 15 percent of all occupant fatalities, and 4 percent of all occupants injured.

Motorcycles made up 3 percent of all registered vehicles in the United States in 2009 and accounted for only 0.7 percent of all vehicle miles traveled. Per vehicle mile traveled in 2009, motorcyclists were about 25 times more likely than passenger car occupants to die in a motor vehicle traffic crash and 5 times more likely to be injured.

Per registered vehicle, the fatality rate for motorcyclists in 2009 was 6 times the fatality rate for passenger car occupants. The injury rate for motorcyclists was 0.8 times the injury rate for passenger car occupants.

Table 2
Occupant Fatality Rates, by Vehicle Type, 2000 and 2009

Fatality Rate		Motorcycles	Passenger Cars	Light Trucks
2000	Per 100,000 Registered Vehicles	66.66	16.18	15.17
	Per 100 Million Vehicle Miles Traveled	27.67	1.31	1.23
2009	Per 100,000 Registered Vehicles	56.27	9.54	10.08
	Per 100 Million Vehicle Miles Traveled	21.45	0.87	0.92
Percent Change, 2000–2009	Per 100,000 Registered Vehicles	-15.59	-41.01	-33.52
	Per 100 Million Vehicle Miles Traveled	-22.48	-33.61	-25.19

Motorcycle Involvement in Crashes

In 2009, 2,203 (48%) of all motorcycles involved in fatal crashes collided with another type of motor vehicle in transport. In two-vehicle crashes, 78 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 2009, 24 percent of the motorcycles involved in fatal crashes collided with fixed objects, compared to 20 percent for passenger cars, 14 percent for light trucks, and 4 percent for large trucks.

In 2009, there were 2,006 two-vehicle fatal crashes involving a motorcycle and another type of vehicle. In 40 percent (806) of these crashes the other vehicle was turning left while the motorcycle was going straight, passing, or overtaking another vehicle. Both vehicles were going straight in 538 crashes (27%).

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 2009, 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 7 percent for large-truck drivers.

Table 3
Motorcylist Fatalities in Motor Vehicle Traffic Crashes, by Age, Year, and Day of the Week, 2000 and 2009

Age	Weekday (6 a.m. Monday to 5:59 p.m. Friday)		Weekend (6 p.m. Friday to 5:59 a.m. Monday)		Unknown		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
2000								
<30	498	49	505	50	4	0	1,007	100
30-39	328	46	377	53	2	0	707	100
40+	516	44	657	56	5	0	1,178	100
Unknown	2	40	3	60	0	0	5	100
Total	1,344	46	1,542	53	11	0	2,897	100
2009								
<30	616	52	563	48	2	0	1,181	100
30-39	394	46	456	54	2	0	852	100
40+	1,228	51	1,194	49	3	0	2,425	100
Unknown	2	50	2	50	0	0	4	100
Total	2,240	50	2,215	50	7	0	4,462	100

From 2000 to 2009, motorcyclist fatalities increased by 54 percent. Among those increases, the 40 and older age group made up 41 percent of motorcyclists killed in 2000 as compared to 54 percent in 2009. Within this motorcyclist age group fatalities increased by 106 percent over a 10-year period.

Table 4
Motorcyclist Fatalities by Engine Size(cc), 2000 and 2009

Year	Engine Displacement				Total
	Up to 500	501–1,000	1,001–1,500	Other/Unknown	
2000	203	1,261	1,092	341	2,897
2009	257	1,662	1,489	1,054	4,462

Thirty-seven percent of motorcyclists were killed while riding a 501-1000 cc motorcycle in 2009, which was the highest percentage of motorcyclist killed by engine size. Although, motorcyclist who rode larger bikes (1,001 to 1,500) represented the highest fatality percentage increase from 2000 to 2009.

Licensing

Twenty-two percent of motorcycle riders involved in fatal crashes in 2009 were riding their vehicles without a valid motorcycle license 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 1.3 times more likely than passenger vehicle drivers to have a previous license suspension or revocation (17% and 13%, respectively).

"Almost one out of four motorcycle riders in fatal crashes in 2009 were riding their vehicles with an invalid license."

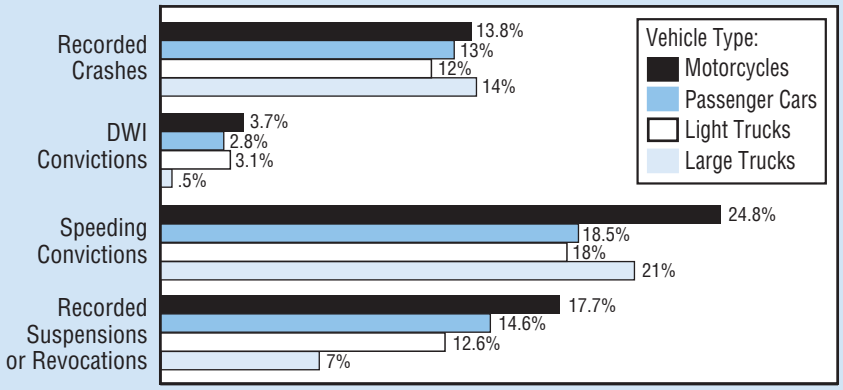
"In 2009, a higher percentage of motorcycle riders in fatal crashes had BAC levels of .08 g/dL or higher than any other type of driver."

Previous Driving Records

As shown in Figure 1, motorcycle riders were shown to have the highest percentage of drivers with previous driving convictions as compared to other 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

"Forty-two percent of motorcycle riders who died in single-vehicle crashes in 2009 had BAC levels of .08 g/dL or higher."

Alcohol

In fatal crashes in 2009 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 operators 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 2009, 1,230 (30%) of all fatally injured motorcycle riders had BAC levels of .08 g/dL or higher. An additional 308 (7 %) 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 the age group 40–44 (41%), followed by the 45–49 (38%) and 35–39 (36%) age groups.

Forty-two percent of the 1,903 motorcycle riders who died in single-vehicle crashes in 2009 had BAC levels of .08 g/dL or higher. Sixty-three percent of those killed in single-vehicle crashes on weekend nights had BACs of .08 g/dL or higher.

Table 5

Motorcycle Riders Killed With a BAC of .08 or Higher, by Crash Type and Time of Day, 2000 and 2009

Motorcycle Riders Killed in Motor Vehicle Traffic Crashes Total Motorcycle Operators Killed		2000			2009		
		Total Motorcycle Operators Killed		BAC=.08+	Total Motorcycle Operators Killed		BAC=.08+
All Crashes	Total*	2,653	859	32	4,158	1,230	30
	Weekday	1,235	319	26	2,107	500	24
	Weekend	1,407	537	38	2,044	727	36
Single-Vehicle	Total*	1,212	547	45	1,903	791	42
	Weekday	479	192	40	895	326	36
	Weekend	723	352	49	1,001	461	46
Multi-Vehicle	Total*	1,441	313	22	2,255	440	19
	Weekday	756	127	17	1,212	174	14
	Weekend	684	185	27	1,043	266	25
	Daytime	1,256	187	15	2,132	302	14
	Nighttime	1,373	659	48	2,002	917	46

*Includes riders involved in fatal crashes when time of day was unknown.
Daytime - 6 a.m. to 5:59 p.m.
Nighttime - 6 p.m. to 5:59 a.m.

Motorcycle riders killed in traffic crashes at night were nearly 3 times more likely to have BAC levels of .08 g/dL or higher than those killed during the day (46% and 14% respectively).

The reported helmet use rate for motorcycle riders with BAC levels .08 g/dL or higher killed in traffic crashes was 42 percent, compared with 65 percent for those with no alcohol (BAC = .00 g/dL).

"Motorcycle riders killed in traffic crashes at night were nearly 3 times more likely to have BAC levels of .08 g/dL or higher than those killed during the day."

Table 6

Motorcycle Rider Fatalities in Motor Vehicle Traffic Crashes by State and BAC, 2009

State	Total Motorcycle Riders Killed	Impaired Motorcycle Operators Killed (BAC=.08+)	BAC=.01+
	Number	Percent	Percent
Alabama	72	31%	36%
Alaska	6	3%	3%
Arizona	113	24%	34%
Arkansas	67	28%	35%
California	385	23%	28%
Colorado	78	32%	35%
Connecticut	42	37%	42%
Delaware	14	71%	74%
Dist of Columbia	4	75%	75%
Florida	386	31%	37%
Georgia	135	15%	20%
Hawaii	34	35%	44%
Idaho	29	32%	40%
Illinois	116	29%	39%
Indiana	107	34%	45%
Iowa	45	29%	37%
Kansas	45	54%	58%
Kentucky	80	23%	31%
Louisiana	100	31%	41%
Maine	22	28%	33%
Maryland	69	33%	39%
Massachusetts	49	18%	30%
Michigan	103	25%	31%
Minnesota	44	24%	38%
Mississippi	47	23%	30%
Missouri	81	33%	42%
Montana	21	49%	59%
Nebraska	14	42%	65%
Nevada	41	32%	45%
New Hampshire	17	34%	37%
New Jersey	61	27%	41%
New Mexico	37	16%	19%
New York	150	22%	30%
North Carolina	146	21%	29%
North Dakota	3	0%	0%
Ohio	150	32%	41%
Oklahoma	96	38%	44%
Oregon	49	34%	36%
Pennsylvania	184	31%	36%
Rhode Island	15	45%	49%
South Carolina	102	38%	50%
South Dakota	14	29%	36%
Tennessee	108	24%	28%
Texas	393	37%	45%
Utah	29	10%	16%
Vermont	7	43%	43%
Virginia	74	38%	46%
Washington	62	38%	48%
West Virginia	24	18%	35%
Wisconsin	76	32%	41%
Wyoming	12	21%	23%
National	**4,158**	**30%**	**37%**
Puerto Rico	53	25%	29%

Helmet Use and Effectiveness

NHTSA estimates that helmets saved the lives of 1,483 motorcyclists in 2009. If all motorcyclists had worn helmets, an additional 732 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. In other words, 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 2009 stood at 67 percent, a gain from 63 percent in 2008.

Reported helmet use rates for fatally injured motorcyclists in 2009 were 57 percent for riders and 43 percent for passengers, compared with 59 percent and 49 percent, respectively, in 2008.

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 2009, 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 law.

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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 Alcohol-Impaired Driving, Bicyclists and Other Cyclists, Children, Large Trucks, Occupant Protection, Older Population, Overview, Passenger Vehicles, 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.

Table 7

Motorcycle Operator Fatalities by State and Helmet Use, 2009

State	Total Motorcycle Operators Killed	Helmeted	Not Helmeted
	Number	Percent	Percent
Alabama*	72	92%	8%
Alaska	6	67%	33%
Arizona	113	42%	58%
Arkansas	67	47%	53%
California*	385	88%	12%
Colorado	78	35%	65%
Connecticut	42	37%	63%
Delaware	14	36%	64%
Dist of Columbia*	4	50%	50%
Florida	386	49%	51%
Georgia*	135	92%	8%
Hawaii	34	38%	62%
Idaho	29	38%	62%
Illinois	116	19%	81%
Indiana	107	21%	79%
Iowa	45	18%	82%
Kansas	45	34%	66%
Kentucky	80	41%	59%
Louisiana*	100	75%	25%
Maine	22	23%	77%
Maryland*	69	86%	14%
Massachusetts*	49	85%	15%
Michigan*	103	88%	12%
Minnesota	44	24%	76%
Mississippi*	47	87%	13%
Missouri*	81	73%	27%
Montana	21	14%	86%
Nebraska*	14	62%	38%
Nevada*	41	95%	5%
New Hampshire	17	35%	65%
New Jersey*	61	77%	23%
New Mexico	37	3%	97%
New York*	150	87%	13%
North Carolina*	146	90%	10%
North Dakota	3	0%	100%
Ohio	150	23%	77%
Oklahoma	96	31%	69%
Oregon*	49	83%	17%
Pennsylvania	184	52%	48%
Rhode Island	15	21%	79%
South Carolina	102	24%	76%
South Dakota	14	7%	93%
Tennessee*	108	81%	19%
Texas	393	35%	65%
Utah	29	38%	62%
Vermont*	7	86%	14%
Virginia*	74	93%	7%
Washington*	62	85%	15%
West Virginia*	24	79%	21%
Wisconsin	76	35%	65%
Wyoming	12	25%	75%
National	**4,158**	**57%**	**43%**
Puerto Rico	53	32%	68%

*States requiring helmet use for all motorcyclists.

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