



Traffic Safety Facts 2002

Motorcycles



A Public Information Fact Sheet on Motor Vehicle and Traffic Safety Published by the National Highway Traffic Safety Administration's National Center for Statistics and Analysis

In 2002, 3,244 motorcyclists were killed and an additional 65,000 were injured in traffic crashes in the United States — 1 percent more than the 3,197 motorcyclist fatalities and 7 percent more than the 60,000 motorcyclist injuries reported in 2001.

Table 1. Motorcyclist Fatalities and Injuries and Fatality and Injury Rates, 1992-2002

Year	Fatalities	Registered Vehicles	Fatality Rate*	Vehicle Miles Traveled (millions)	Fatality Rate**
1992	2,395	4,065,118	58.92	9,557	25.06
1993	2,449	3,977,856	61.57	9,906	24.72
1994	2,320	3,756,555	61.76	10,240	22.66
1995	2,227	3,897,191	57.14	9,797	22.73
1996	2,161	3,871,599	55.82	9,920	21.78
1997	2,116	3,826,373	55.30	10,081	20.99
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	27.65
2001	3,197	4,903,056	65.20	9,529	33.55
2002	3,244	—	—	—	—

Year	Injuries	Registered Vehicles	Injury Rate*	Vehicle Miles Traveled (millions)	Injury Rate**
1992	65,000	4,065,118	1,601	9,557	681
1993	59,000	3,977,856	1,494	9,906	600
1994	57,000	3,756,555	1,528	10,240	561
1995	57,000	3,897,191	1,475	9,797	587
1996	55,000	3,871,599	1,428	9,920	557
1997	53,000	3,826,373	1,374	10,081	522
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	9,529	632
2002	65,000	—	—	—	—

* Rate per 100,000 registered vehicles.

** Rate per 100 million vehicle miles traveled.

— = not available.

Sources: Vehicle miles traveled and registered vehicles — Federal Highway Administration. Traffic deaths — Fatality Analysis Reporting System (FARS), NHTSA. Traffic injuries — General Estimates System (GES), NHTSA.

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More than 120,000 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 2 percent of all registered vehicles in the United States in 2001 and accounted for only 0.3 percent of all vehicle miles traveled.

Per vehicle mile traveled in 2001, motorcyclists were about 26 times as likely as passenger car occupants to die in a motor vehicle traffic crash and 5 times as likely to be injured.

Table 2. Occupant Fatality Rates by Vehicle Type, 1991 and 2001

Fatality Rate	Motorcycles	Passenger Cars	Light Trucks
1991			
Per 100,000 Registered Vehicles	67.17	18.15	16.12
Per 100 Million Vehicle Miles Traveled	30.57	1.59	1.41
2001			
Per 100,000 Registered Vehicles	65.20	15.79	14.84
Per 100 Million Vehicle Miles Traveled	33.55	1.28	1.21
Percent Change, 1991-2001			
Per 100,000 Registered Vehicles	-2.9%	-13.0%	-7.9%
Per 100 Million Vehicle Miles Traveled	+9.7%	-19.5%	-14.2%

Note: 2002 registered vehicle and vehicle miles traveled data not available.

Per registered vehicle, the fatality rate for motorcyclists in 2001 was 4.1 times the fatality rate for passenger car occupants. The injury rate for passenger car occupants per registered vehicle was 1.2 times the injury rate for motorcyclists.

In 2002, motorcyclists accounted for 8 percent of total traffic fatalities, 9 percent of all occupant fatalities, and 2 percent of all occupants injured.

About one-half (1,677) of all motorcycles involved in fatal crashes in 2002 collided with another motor vehicle in transport. In two-vehicle crashes, 77 percent of the motorcycles involved were impacted in the front. Only 6 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 2002, 28 percent of the motorcycles involved in fatal crashes collided with a fixed object, compared to 18 percent for passenger cars, 12 percent for light trucks, and 4 percent for large trucks.

Motorcycles are also more likely to be involved in an injury collision with a fixed object than are other vehicles. In 2002, 12 percent of the reported injury crashes involving motorcycles were fixed object crashes, compared to 9 percent for passenger cars, 8 percent for light trucks, and 4 percent for large trucks.

In 2002, there were 1,416 two-vehicle fatal crashes involving a motorcycle and another vehicle. In 37 percent (525) 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 390 crashes (28 percent).

“Per vehicle mile, motorcyclists are about 26 times as likely as passenger car occupants to die in a traffic crash.”

Almost half (44 percent) of all motorcyclist fatalities in 2002 resulted from crashes in seven states: 323 in California, 319 in Florida, 247 in Texas, 141 in New York, 134 in Pennsylvania, 133 in Ohio, and 123 in North Carolina.

NHTSA has revised the definition of a speeding-related crash. A crash is considered 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 2002, 38 percent of all motorcyclists involved in fatal crashes were speeding, approximately twice the rate for drivers of passenger cars or light trucks. The percentage of alcohol involvement was 39 percent higher for motorcyclists than for drivers of passenger vehicles.

Licensing

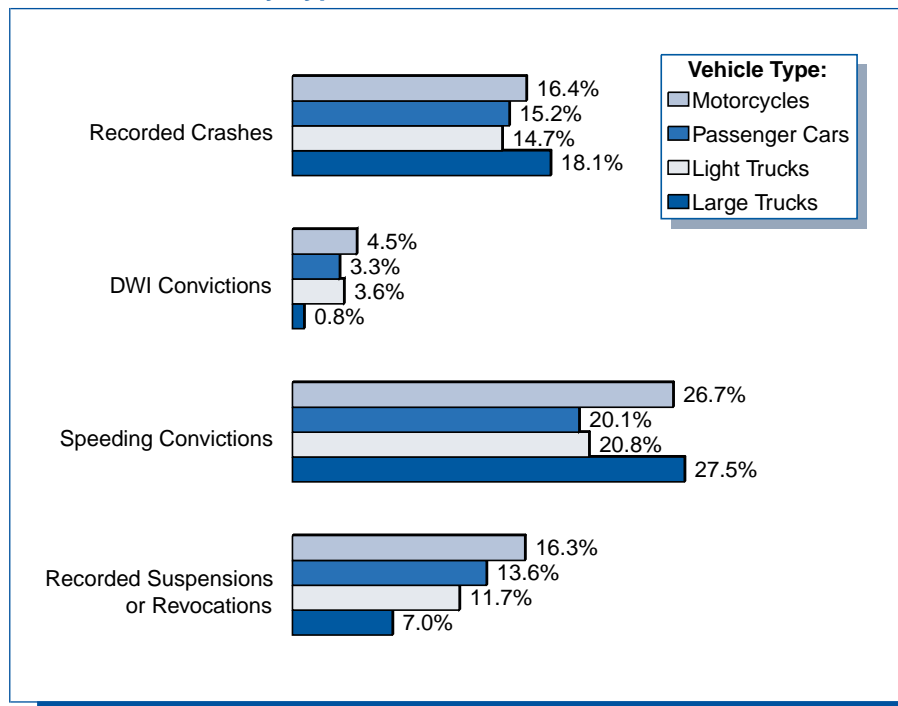
One out of four motorcycle operators (25 percent) involved in fatal crashes in 2002 were operating the vehicle with an invalid license at the time of the collision, while only 13 percent of drivers of passenger vehicles in fatal crashes did not have a valid license.

Motorcycle operators involved in fatal traffic crashes were 1.3 times as likely as passenger vehicle drivers to have a previous license suspension or revocation (16 percent and 13 percent, respectively).

Almost 5 percent of the motorcycle operators involved in fatal crashes in 2002 had at least one previous conviction for driving while intoxicated on their driver records, compared to 3.3 percent of passenger vehicle drivers.

“One out of four motorcycle operators in fatal crashes in 2002 were operating the vehicle with an invalid license.”

Figure 1. Previous Driving Records of Drivers Involved in Fatal Traffic Crashes, by Type of Vehicle, 2002



Alcohol

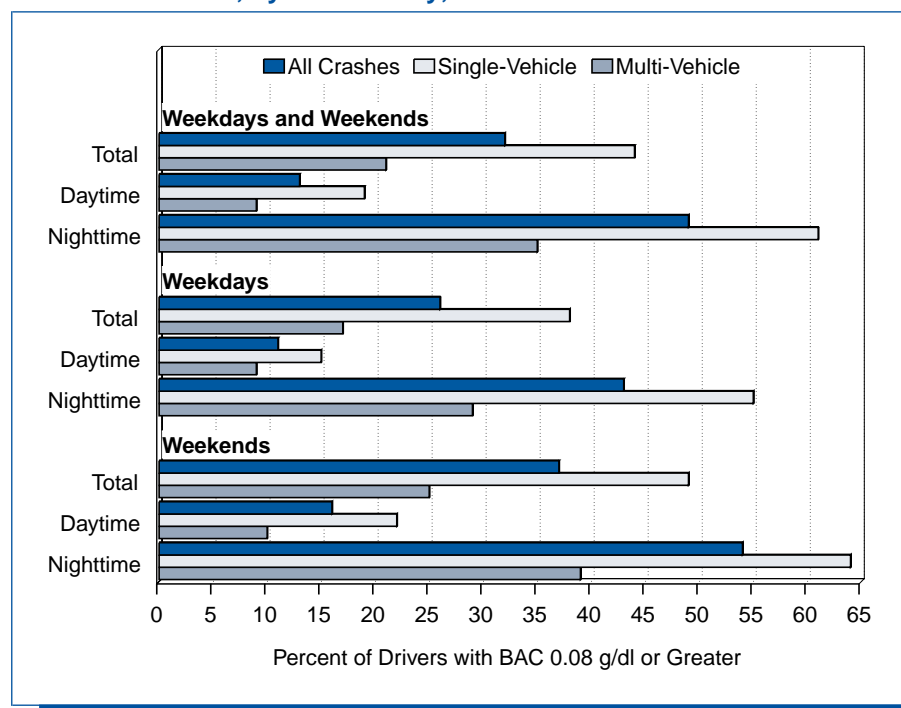
In 2001, NHTSA began using a revised method — **multiple imputation** — to estimate missing information about blood alcohol concentration (BAC) levels for persons involved in fatal crashes. The alcohol estimates in this fact sheet are based on the new imputation method. More information on the new multiple imputation method, including detailed tabulations of alcohol involvement in various categories (age, sex, time of day, etc.), is available in NHTSA Technical Report DOT HS 809 403, Transitioning to Multiple Imputation: A New Method to Estimate Missing Blood Alcohol Concentration (BAC) Values in FARS.

Motorcycle operators involved in fatal crashes in 2002 had higher intoxication rates, with blood alcohol concentrations (BAC) of 0.08 grams per deciliter (g/dl) or greater, than any other type of motor vehicle driver. Intoxication rates for vehicle operators involved in fatal crashes were 31 percent for motorcycles, 23 percent for light trucks, 22 percent for passenger cars, and 2 percent for large trucks.

In 2002, 32 percent of all fatally injured motorcycle operators were intoxicated (BAC 0.08 g/dl or greater). An additional 8 percent had lower alcohol levels (BAC 0.01 to 0.07 g/dl). The intoxication rate was highest for fatally injured operators between 40 and 44 years old (47 percent), followed by ages 35 to 39 (42 percent) and ages 45 to 49 (39 percent).

Almost half (44 percent) of the 1,426 motorcycle operators who died in single-vehicle crashes in 2002 were intoxicated. Almost two-thirds (64 percent) of those killed in single-vehicle crashes on weekend nights were intoxicated.

Figure 2. Intoxication Rates for Motorcycle Operators Killed in Traffic Crashes, by Time of Day, 2002



“Almost half of the motorcycle operators who died in single-vehicle crashes in 2002 were intoxicated.”

“In 2002, motorcycle operators in fatal crashes had higher intoxication rates than any other type of driver.”

Motorcycle operators killed in traffic crashes at night were nearly 4 times as likely to be intoxicated as those killed during the day (49 percent and 13 percent, respectively).

The reported helmet use rate for intoxicated motorcycle operators killed in traffic crashes was 38 percent, compared with 62 percent for those who were sober.

Helmets

NHTSA estimates that helmets saved the lives of 692 motorcyclists in 2002. If all motorcyclists had worn helmets, an additional 449 lives could have been saved.

Helmets are estimated to be 29 percent effective in preventing fatal injuries to motorcyclists.

Helmets cannot protect the rider from most types of bodily injuries. However, a recent NHTSA study showed that motorcycle helmets are 67 percent effective in preventing brain injuries. (Source: 1996 Crash Outcome Data Evaluation System (CODES): Report to Congress on Benefits of Safety Belts and Motorcycle Helmets.)

According to NHTSA's National Occupant Protection Use Survey, a nationally representative observational survey of motorcycle helmet, safety belt, and child safety seat use, helmet use declined by 13 percentage points over 2 years, from 71 percent in 2000 to 58 percent in 2002. This drop is statistically significant and corresponds to a striking 45 percent increase in nonuse.

Reported helmet use rates for fatally injured motorcyclists in 2002 were 53 percent for operators and 41 percent for passengers, the same as the corresponding rates of 53 percent and 41 percent, respectively, in 2001.

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 2002, 20 states, the District of Columbia, and Puerto Rico required helmet use by all motorcycle operators and passengers. In another 27 states, only persons under a specific age, usually 18, were required to wear helmets. Three states had no laws requiring helmet use.

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For more information:

Information on motorcycle traffic fatalities is available from the National Center for Statistics and Analysis, NPO-121, 400 Seventh Street, S.W., Washington, D.C. 20590. NCSA information can also be obtained by telephone or by fax-on-demand at 1-800-934-8517. FAX messages should be sent to (202) 366-7078. General information on highway traffic safety can be accessed by Internet users at <http://www-nrd.nhtsa.dot.gov/people/nca>. To report a safety-related problem or to inquire about motor vehicle safety information, contact the Auto Safety Hotline at 1-800-424-9393.

Other fact sheets available from the National Center for Statistics and Analysis are *Overview, Alcohol, Occupant Protection, Older Population, Speeding, Young Drivers, Pedestrians, Pedalcyclists, Children, Large Trucks, School Transportation-Related Crashes, State Traffic Data, and State Alcohol Estimates*. 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*.

Table 3. 2002 Motorcyclist Fatalities and 2001 Fatality Rates by State

State	2002			2001	
	Total Traffic Fatalities	Motorcyclist Fatalities	Percent of Total	Registered Vehicles (thousands)	Motorcyclist Fatalities per 10,000 Registered Vehicles
Alabama ^a	1,033	43	4.2	55	7.82
Alaska ^b	87	12	13.8	17	4.17
Arizona ^b	1,117	94	8.4	191	3.81
Arkansas ^b	640	38	5.9	29	12.97
California ^a	4,078	323	7.9	488	6.13
Colorado ^k	742	73	9.8	195	4.31
Connecticut ^b	322	47	14.6	52	8.87
Delaware ^c	124	7	5.6	13	7.90
District of Columbia ^a	47	7	14.9	1	33.97
Florida ^d	3,132	319	10.2	305	9.40
Georgia ^a	1,523	85	5.6	92	10.33
Hawaii ^b	119	24	20.2	22	8.28
Idaho ^b	264	12	4.5	39	4.84
Illinois ^k	1,411	100	7.1	257	5.45
Indiana ^b	792	88	11.1	127	5.89
Iowa ^k	404	41	10.1	138	2.83
Kansas ^b	512	32	6.3	52	4.83
Kentucky ^e	915	45	4.9	46	12.77
Louisiana ^f	875	66	7.5	51	12.87
Maine ^g	216	13	6.0	33	4.27
Maryland ^a	659	50	7.6	55	9.69
Massachusetts ^a	459	58	12.6	115	4.61
Michigan ^a	1,277	87	6.8	199	4.87
Minnesota ^b	657	47	7.2	152	2.76
Mississippi ^a	885	26	2.9	27	11.18
Missouri ^a	1,208	60	5.0	65	8.22
Montana ^b	270	24	8.9	26	4.91
Nebraska ^a	307	15	4.9	23	5.20
Nevada ^a	381	35	9.2	33	6.46
New Hampshire ^b	127	12	9.4	53	4.13
New Jersey ^a	773	41	5.3	126	5.81
New Mexico ^b	449	32	7.1	28	10.97
New York ^a	1,522	141	9.3	119	12.37
North Carolina ^a	1,575	123	7.8	87	12.56
North Dakota ^b	97	1	1.0	18	2.20
Ohio ^h	1,418	133	9.4	269	4.65
Oklahoma ^b	734	38	5.2	78	5.03
Oregon ^a	436	26	6.0	73	4.41
Pennsylvania ^a	1,614	134	8.3	238	5.54
Rhode Island ⁱ	84	9	10.7	21	2.81
South Carolina ^b	1,053	89	8.5	57	14.47
South Dakota ^b	180	19	10.6	32	5.39
Tennessee ^a	1,175	74	6.3	84	9.30
Texas ^j	3,725	247	6.6	213	11.39
Utah ^b	328	18	5.5	39	7.22
Vermont ^a	78	5	6.4	24	4.55
Virginia ^a	914	54	5.9	65	6.92
Washington ^a	659	54	8.2	123	4.45
West Virginia ^a	439	29	6.6	28	7.54
Wisconsin ^b	803	82	10.2	209	3.44
Wyoming ^b	176	12	6.8	21	4.75
U.S. Total	42,815	3,244	7.6	4,903	6.52
Puerto Rico ^a	510	60	11.8	22	21.53

Status of state motorcycle helmet use requirements (as of December 2002): ^aRequired for all riders. ^bRequired for riders under 18 years old. ^cRequired for riders under 19 years old; helmets must be in possession of other riders, but use is not required. ^dRequired for riders under 21 years old and those without \$10,000 medical insurance that will cover injuries from a motorcycle crash. ^eRequired for riders under 21 years old, riders operating with instruction permit, and novices (first-year operators). ^fRequired for riders under 18 years old and those without \$10,000 medical insurance; proof of insurance policy must be shown to law enforcement officer upon request. ^gRequired for riders under 15 years old, novices, and holders of learner's permits. ^hRequired for riders under 18 years old; novices must wear helmets. ⁱRequired for riders under 21 years old; novices must wear helmets. ^jRequired for riders 20 and under and those who have not completed a rider training course or who do not have \$10,000 medical insurance coverage. ^kNo helmet use requirement.

Notes: 2002 registered vehicle data not available. Totals may not equal sum of components due to independent rounding.

Source: Registered vehicles — FHWA.