



# Traffic Safety Facts 2001

## 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 2001, 3,181 motorcyclists were killed and an additional 60,000 were injured in traffic crashes in the United States — 10 percent more than the 2,897 motorcyclist fatalities and 4 percent more than the 58,000 motorcyclist injuries reported in 2000.

**Table 1. Motorcyclist Fatalities and Injuries and Fatality and Injury Rates, 1991-2001**

Year	Fatalities	Registered Vehicles	Fatality Rate*	Vehicle Miles Traveled (millions)	Fatality Rate**
1991	2,806	4,177,365	6.7	9,178	30.57
1992	2,395	4,065,118	5.9	9,557	25.06
1993	2,449	3,977,856	6.2	9,906	24.72
1994	2,320	3,756,555	6.2	10,240	22.66
1995	2,227	3,897,191	5.7	9,797	22.73
1996	2,161	3,871,599	5.6	9,920	21.78
1997	2,116	3,826,373	5.5	10,081	20.99
1998	2,294	3,879,450	5.9	10,283	22.31
1999	2,483	4,152,433	6.0	10,584	23.46
2000	2,897	4,346,068	6.7	10,479	27.65
2001	3,181	—	—	—	—

Year	Injuries	Registered Vehicles	Injury Rate*	Vehicle Miles Traveled (millions)	Injury Rate**
1991	80,000	4,177,365	193	9,178	876
1992	65,000	4,065,118	160	9,557	681
1993	59,000	3,977,856	149	9,906	600
1994	57,000	3,756,555	153	10,240	561
1995	57,000	3,897,191	147	9,797	587
1996	55,000	3,871,599	143	9,920	557
1997	53,000	3,826,373	137	10,081	526
1998	49,000	3,879,450	126	10,283	477
1999	50,000	4,152,433	120	10,584	472
2000	58,000	4,346,068	133	10,479	551
2001	60,000	—	—	—	—

\* Rate per 10,000 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.

***“NHTSA estimates that helmets saved 674 motorcyclists’ lives in 2001, and that 444 more could have been saved if all motorcyclists had worn helmets.”***

More than 100,000 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 2000 and accounted for only 0.4 percent of all vehicle miles traveled.

Per vehicle mile traveled in 2000, motorcyclists were about 21 times as likely as passenger car occupants to die in a motor vehicle traffic crash and 4 times as likely to be injured.

**Table 2. Occupant Fatality Rates by Vehicle Type, 1990 and 2000**

Fatality Rate	Motorcycles	Passenger Cars	Light Trucks
<b>1990</b>			
Per 10,000 Registered Vehicles	7.6	2.0	1.7
Per 100 Million Vehicle Miles Traveled	33.94	1.69	1.55
<b>2000</b>			
Per 10,000 Registered Vehicles	6.7	1.6	1.5
Per 100 Million Vehicle Miles Traveled	27.65	1.31	1.22
<b>Percent Change, 1990-2000</b>			
Per 10,000 Registered Vehicles	-11.8%	-20.0%	-11.8%
Per 100 Million Vehicle Miles Traveled	-18.5%	-22.5%	-21.3%

Note: 2001 registered vehicle and vehicle miles traveled data not available.

Per registered vehicle, the fatality rate for motorcyclists in 2000 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 2001, motorcyclists accounted for 8 percent of total traffic fatalities, 9 percent of all occupant fatalities, and 2 percent of all occupants injured.

More than one-half (1,685) of all motorcycles involved in fatal crashes in 2001 collided with another motor vehicle in transport. In two-vehicle crashes, 75 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 2001, 28 percent of the motorcycles involved in fatal crashes collided with a fixed object, compared to 17 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 2001, 12 percent of the reported injury crashes involving motorcycles were fixed object crashes, compared to 8 percent for passenger cars, 8 percent for light trucks, and 4 percent for large trucks.

In 2001, there were 1,428 two-vehicle fatal crashes involving a motorcycle and another vehicle. In 36 percent (516) 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 394 crashes (28 percent).

***“Per vehicle mile, motorcyclists are about 21 times as likely as passenger car occupants to die in a traffic crash.”***

Almost half (43 percent) of all motorcyclist fatalities in 2001 resulted from crashes in seven states: 299 in California, 287 in Florida, 243 in Texas, 146 in New York, 140 in Illinois, 128 in Pennsylvania, and 124 in Ohio.

*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 2001, 39 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 37 percent higher for motorcyclists than for drivers of passenger vehicles.

### Licensing

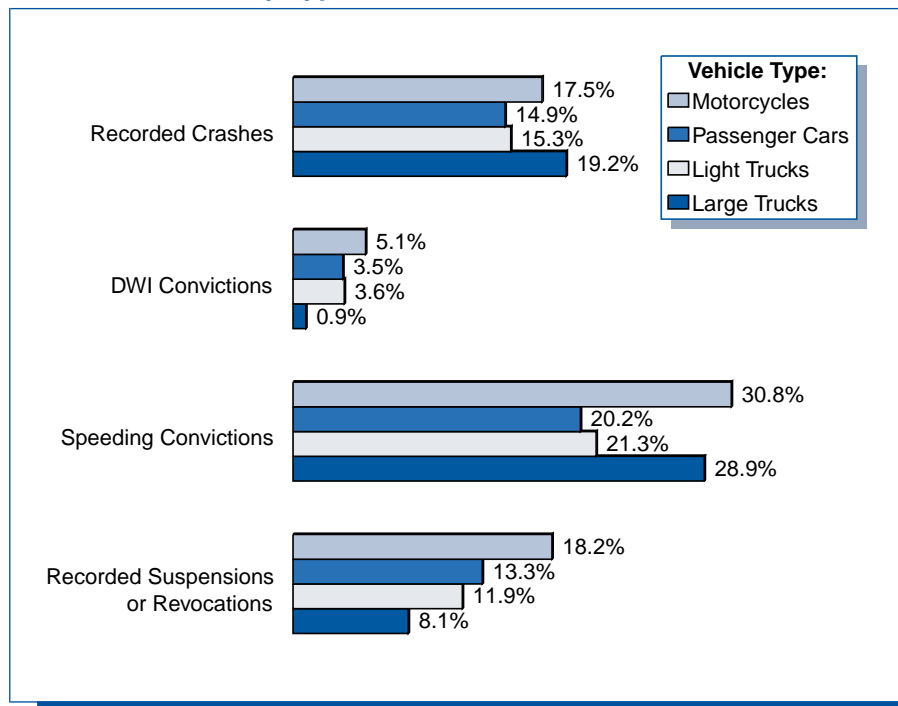
More than one out of four motorcycle operators (27 percent) involved in fatal crashes in 2001 were operating the vehicle with an invalid license at the time of the collision, while only 12 percent of drivers of passenger vehicles in fatal crashes did not have a valid license.

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

More than 5 percent of the motorcycle operators involved in fatal crashes in 2001 had at least one previous conviction for driving while intoxicated on their driver records, compared to less than 4 percent of passenger vehicle drivers.

**“More than one out of four motorcycle operators in fatal crashes in 2001 were operating the vehicle with an invalid license.”**

**Figure 1. Previous Driving Records of Drivers Involved in Fatal Traffic Crashes, by Type of Vehicle, 2001**



## Alcohol

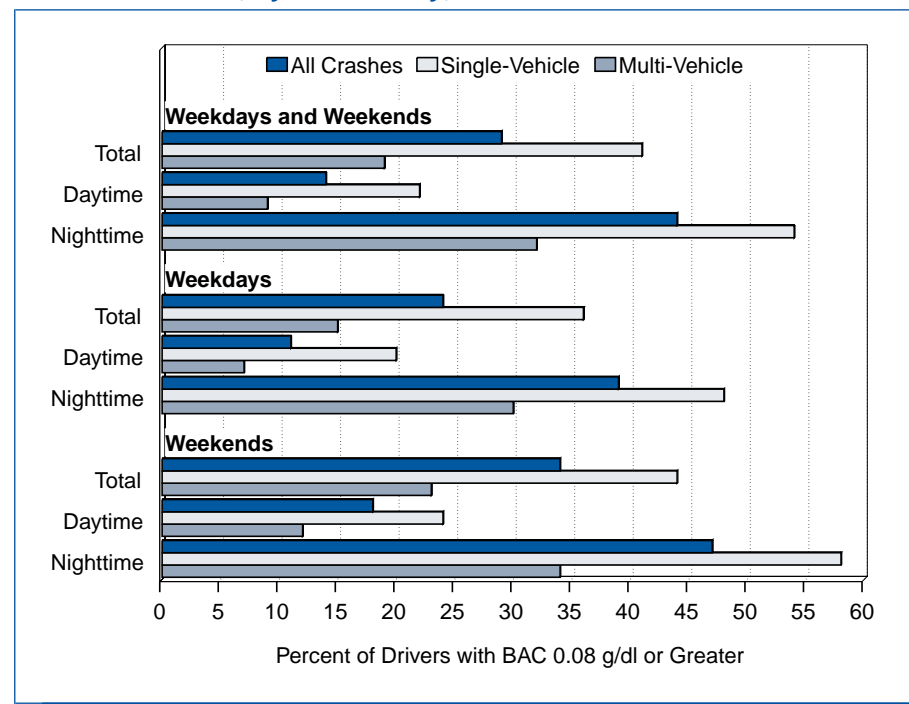
In 2001, NHTSA began using a revised method — **multiple imputation** — to estimate missing information about blood alcohol concentration (BAC) levels for persons involved in fatal crashes. The alcohol estimates in this fact sheet are based on the new imputation method. More information on the new multiple 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 2001 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 29 percent for motorcycles, 23 percent for light trucks, 23 percent for passenger cars, and 1 percent for large trucks.

In 2001, 29 percent of all fatally injured motorcycle operators were intoxicated (BAC 0.08 g/dl or greater). An additional 7 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 (42 percent), followed by ages 35 to 39 (40 percent) and ages 30 to 34 (35 percent).

Almost half (41 percent) of the 1,369 motorcycle operators who died in single-vehicle crashes in 2001 were intoxicated. Almost three-fifths (58 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, 2001**



**“Almost half of the motorcycle operators who died in single-vehicle crashes in 2001 were intoxicated.”**

**“In 2001, motorcycle operators in fatal crashes had higher intoxication rates than any other type of driver.”**

Motorcycle operators killed in traffic crashes at night were more than 3 times as likely to be intoxicated as those killed during the day (44 percent and 14 percent, respectively).

The reported helmet use rate for intoxicated motorcycle operators killed in traffic crashes was 40 percent, compared with 60 percent for those who were sober.

### **Helmets**

NHTSA estimates that helmets saved the lives of 674 motorcyclists in 2001. If all motorcyclists had worn helmets, an additional 444 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 2001 were 53 percent for operators and 41 percent for passengers, compared with 54 percent and 47 percent, respectively, in 2000.

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 2001, 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/nrsa>. 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. 2001 Motorcyclist Fatalities and 2000 Fatality Rates by State

State	2001			2000	
	Total Traffic Fatalities	Motorcyclist Fatalities	Percent of Total	Registered Vehicles (thousands)	Motorcyclist Fatalities per 10,000 Registered Vehicles
Alabama <sup>a</sup>	994	43	4.3	55	7.8
Alaska <sup>b</sup>	85	7	8.2	16	3.7
Arizona <sup>b</sup>	1,048	73	7.0	165	5.5
Arkansas <sup>b</sup>	611	38	6.2	25	10.8
California <sup>a</sup>	3,956	299	7.6	449	6.2
Colorado <sup>k</sup>	736	84	11.4	98	7.4
Connecticut <sup>b</sup>	312	46	14.7	54	9.3
Delaware <sup>c</sup>	136	10	7.4	11	4.6
District of Columbia <sup>a</sup>	68	5	7.4	1	47.4
Florida <sup>d</sup>	3,011	287	9.5	255	10.1
Georgia <sup>a</sup>	1,615	94	5.8	88	6.9
Hawaii <sup>b</sup>	140	15	10.7	20	9.0
Idaho <sup>b</sup>	259	19	7.3	42	4.3
Illinois <sup>k</sup>	1,414	140	9.9	196	6.4
Indiana <sup>b</sup>	909	75	8.3	118	6.2
Iowa <sup>k</sup>	447	39	8.7	127	2.5
Kansas <sup>b</sup>	494	25	5.1	50	4.2
Kentucky <sup>e</sup>	845	59	7.0	44	8.6
Louisiana <sup>f</sup>	954	63	6.6	48	11.8
Maine <sup>g</sup>	192	14	7.3	29	6.2
Maryland <sup>a</sup>	660	53	8.0	49	10.1
Massachusetts <sup>a</sup>	477	53	11.1	107	3.1
Michigan <sup>a</sup>	1,328	97	7.3	184	4.7
Minnesota <sup>b</sup>	568	42	7.4	143	2.6
Mississippi <sup>a</sup>	784	30	3.8	32	6.9
Missouri <sup>a</sup>	1,098	53	4.8	61	7.2
Montana <sup>b</sup>	230	13	5.7	27	4.9
Nebraska <sup>a</sup>	246	12	4.9	21	1.4
Nevada <sup>a</sup>	313	21	6.7	25	8.4
New Hampshire <sup>b</sup>	142	22	15.5	49	5.5
New Jersey <sup>a</sup>	747	72	9.6	112	5.0
New Mexico <sup>b</sup>	463	31	6.7	29	9.1
New York <sup>a</sup>	1,548	146	9.4	107	11.1
North Carolina <sup>a</sup>	1,530	109	7.1	83	11.9
North Dakota <sup>b</sup>	105	4	3.8	17	2.3
Ohio <sup>h</sup>	1,378	124	9.0	255	5.0
Oklahoma <sup>b</sup>	676	36	5.3	58	4.2
Oregon <sup>a</sup>	488	32	6.6	69	5.3
Pennsylvania <sup>a</sup>	1,530	128	8.4	216	6.9
Rhode Island <sup>i</sup>	81	6	7.4	19	6.2
South Carolina <sup>b</sup>	1,059	82	7.7	52	15.9
South Dakota <sup>b</sup>	171	17	9.9	29	6.8
Tennessee <sup>a</sup>	1,251	78	6.2	71	9.7
Texas <sup>j</sup>	3,724	243	6.5	187	12.2
Utah <sup>b</sup>	292	28	9.6	28	8.5
Vermont <sup>a</sup>	92	11	12.0	22	2.8
Virginia <sup>a</sup>	935	45	4.8	61	7.1
Washington <sup>a</sup>	649	55	8.5	119	3.1
West Virginia <sup>a</sup>	376	21	5.6	26	6.5
Wisconsin <sup>b</sup>	763	72	9.4	180	4.3
Wyoming <sup>b</sup>	186	10	5.4	19	3.1
<b>U.S. Total</b>	<b>42,116</b>	<b>3,181</b>	<b>7.6</b>	<b>4,346</b>	<b>6.7</b>
Puerto Rico <sup>a</sup>	481	46	9.6	21	23.8

Status of state motorcycle helmet use requirements (as of December 2001): <sup>a</sup>Required for all riders. <sup>b</sup>Required for riders under 18 years old. <sup>c</sup>Required for riders under 19 years old; helmets must be in possession of other riders, but use is not required. <sup>d</sup>Required for riders under 21 years old and those without \$10,000 medical insurance that will cover injuries from a motorcycle crash. <sup>e</sup>Required for riders under 21 years old, riders operating with instruction permit, and novices (first-year operators). <sup>f</sup>Required 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. <sup>g</sup>Required for riders under 15 years old, novices, and holders of learner's permits. <sup>h</sup>Required for riders under 18 years old; novices must wear helmets. <sup>i</sup>Required for riders under 21 years old; novices must wear helmets. <sup>j</sup>Required 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. <sup>k</sup>No helmet use requirement.

Notes: 2001 registered vehicle data not available. Totals may not equal sum of components due to independent rounding.

Source: Registered vehicles — FHWA.