

## Motorcycle Crashes

Motorcycle riding has become more popular in recent years, appealing to a new group of enthusiasts consisting of older and more affluent riders. Sales of all types of two-wheelers reached about 1,116,000 in 2005, a level not seen in about 30 years. At the same time motorcycle fatalities have also been climbing, reaching their highest level in 2005 since 1986. There has been a dramatic jump in the number of deaths among motorcycle riders age 40 and older in recent years.

Motorcycles are by their nature far less crashworthy than closed vehicles. They are also less visible to other drivers and pedestrians and less stable than four-wheel vehicles. Operating a motorcycle requires a different combination of physical and mental skills than those used in driving four-wheel vehicles. Motorcyclists and their passengers are more vulnerable to the hazards of weather and road conditions than drivers in closed vehicles.

Motorcycle insurance is widely available. As motorcycles became more popular, more insurers entered the market. Now, most of the top ten auto insurers offer motorcycle insurance, either as an endorsement to a personal automobile policy or as a separate policy, in most of the states in which they operate. Many have recently expanded into new states. For more information see Motorcycle Insurance in the Specialty Insurance section of the I.I.I. Web site.

### KEY FACTS

- In 2005, 4,553 people died in motorcycle crashes, up 13.0 percent from 4,028 in 2004. The 13 percent increase was the largest since 1977.
- Motorcycle crash fatalities have increased for eight years in a row.
- There were 5.8 million motorcycles on U.S. roads in 2004, according to latest data available, compared with 133.3 million passenger cars. Motorcycles accounted for 2.4 percent of all registered motor vehicles and 0.3 percent of vehicle miles traveled in 2004.
- Some 88,000 motorcycles were involved in crashes in 2004.
- Motorcyclists were 34 times more likely than passenger car occupants to die in a crash in 2005, per vehicle mile traveled, and 8 times more likely to be injured.
- The fatality rate for motorcyclists was 4.8 times the fatality rate for passenger car occupants per registered vehicle in 2004.

### FATALITIES AND INJURIES

**Overall:** According to U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA, <http://www.nhtsa.dot.gov>), estimates, in 2005, 4,553 motorcyclists died in crashes, up 13.0 percent from 4,028 in 2004, marking the eighth consecutive year of higher motorcycle deaths. Motorcycle fatalities are at the highest level since 1986. From 1997, a historic low, to 2005, motorcycle fatalities are estimated to have risen 115 percent. In 2005, 87,000 motorcycle riders were injured in accidents, up 14.5 percent from 76,000 in 2004 and 53 percent from 57,000 in 1995.

In 2005 motorcyclists accounted for 10.5 percent of total traffic fatalities, 13.8 percent of occupant fatalities and 3.5 percent of all occupants injured. In 1997 motorcyclists accounted for only 5 percent of total traffic fatalities.

**By Age:** Older motorcycle riders, who account for an increasingly larger proportion of all motorcyclists, now account for about half of all motorcycle rider fatalities. NHTSA data show that in 2005, 47 percent of motorcycle riders killed in crashes were age 40 or over, compared with 25 percent ten years earlier. In contrast, fatalities among young motorcycle riders have declined in the

past 10 years, relative to other age groups. In 2005 fatalities in the under 30-year old group dropped to 32 percent, from 50 percent in 1995. Fatalities among motorcyclists in the 30- to 39-year old group fell to 21 percent in 2005, from 26 percent ten years earlier.

### By Driver Behavior:

**Alcohol use:** Motorcyclist operators have high incidences of alcohol use. NHTSA says that in 2005, 27 percent of motorcycle operators involved in fatal crashes had a blood-alcohol concentration (BAC) over 0.08 grams per deciliter (the national definition of drunk driving), compared with 22 percent of drivers of passenger cars, 21 percent of light truck drivers and 1 percent of large truck drivers in fatal crashes. These figures take into account fatally injured operators, passengers and/or pedestrians.

Of all fatally injured motorcycle operators, 27 percent had BAC levels of 0.08 or higher. Another 7 percent had lower alcohol levels (0.01 to 0.07 BAC.). Fatally injured motorcycle operators between the ages of 35 to 44 had the highest percentage of BACs 0.08 and above (39 percent), compared with those ages 45 to 49 (34 percent). Forty-one percent of the 1,878 fatally injured motorcycle operators who died in single-vehicle crashes in 2005 (for example, those in which the motorcycle crashed into a stationary object) had BAC levels of 0.08 or higher. On weekend nights, the proportion was higher: 61 percent of motorcycle operators who died in single-vehicle crashes had BACs of 0.08 or higher.

**Speeding:** In 2005, 34 percent of all motorcyclists involved in fatal crashes were speeding, compared with 26 percent for drivers of passenger cars and 25 percent for light truck drivers, according to NHTSA.

**Licensing:** Twenty-four percent of motorcycle operators who were involved in fatal crashes were riding without a valid license in 2005, compared with 12 percent of passenger vehicle drivers. NHTSA says that motorcycle operators were also 1.4 times more likely than passenger vehicle drivers to have a prior license suspension or revocation.

## SAFETY ISSUES

The Motorcycle Safety Foundation (MSF, <http://www.msf-usa.org>), sponsored by motorcycle manufacturers and distributors, works with NHTSA, state governments and other organizations to improve motorcycle safety through education, training and licensing. Since 1973 about 3.2 million motorcyclists have taken MSF training courses. The organization also works with the states to integrate rider safety and skills in licensing tests. It also promotes safety by recommending motorcycle operators wear protective gear, especially helmets, ride sober and ride within their skill limits.

**Motorcycle Helmets:** In 2005 motorcycle helmets saved 1,546 lives. NHTSA says that if all motorcyclists had worn helmets 728 more lives would have been saved. Helmets are estimated to be 37 percent effective in preventing fatal injuries.

A NHTSA study covering 10 states found that when universal helmet laws, which pertain to all riders, were repealed, helmet-use rates dropped from 99 percent to 50 percent. In states where the universal law was reinstated, helmet-use rates rose to above 95 percent.

**Motorcycle Helmet Use Laws:** According to the Insurance Institute for Highway Safety, 20 states and the District of Columbia had laws on the books requiring all motorcyclists to wear helmets as of June 2006 (See chart below). In another 26 states only people under a specific age (mostly between 17 and 20 years of age) were required to wear helmets. Four states (Colorado, Illinois, Iowa and New Hampshire) had no helmet use laws.

According to NHTSA's National Occupant Protection Use Survey, a nationally representative observational survey, motorcycle helmet use rose to 51 percent in June 2006, from 48 percent in June 2005. Helmet use had been falling from a high of 71 percent in October 2000. Use rates remain lower in states that do not require all riders to use helmets. In June 2006, 68 percent of motorcyclists in states requiring helmet use wore them, compared with 37 percent of motorcyclists in states that do not. The survey counts only helmets that comply with Department of Transportation

standards. Since 1997, five states have limited helmet laws to cover only young drivers. The latest, Pennsylvania, limits mandatory usage requirements to motorcycle drivers under the age of 20. But in August 2004 Louisiana reinstated its universal helmet law.

## STATE MOTORCYCLE HELMET USE LAWS

As of October 2006

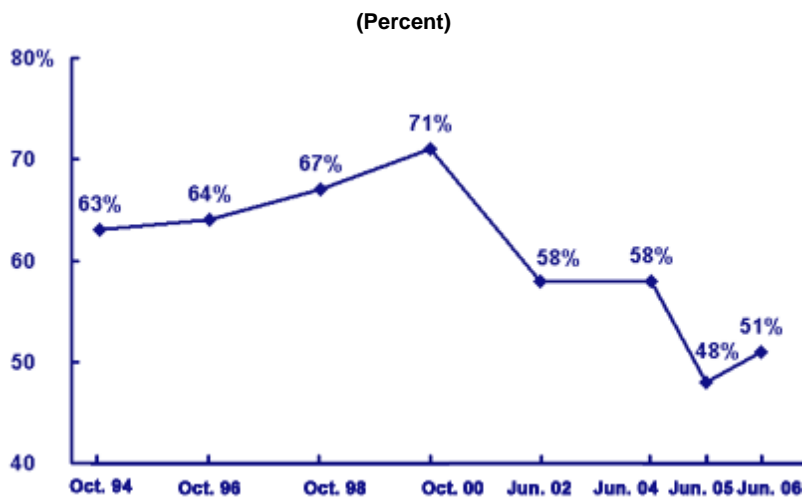
State	Universal law (1)	Partial law (1)
Alabama	X	
Alaska		17 and younger (2)
Arizona		17 and younger
Arkansas		20 and younger
California	X	
Colorado		
Connecticut		17 and younger
Delaware		18 and younger
District of Columbia	X	
Florida		20 and younger (3)
Georgia	X	
Hawaii		17 and younger
Idaho		17 and younger
Illinois		
Indiana		17 and younger
Iowa		
Kansas		17 and younger
Kentucky		20 and younger (3), (4)
Louisiana	X	
Maine		14 and younger (4)
Maryland	X	
Massachusetts	X	
Michigan	X	
Minnesota		17 and younger (4)
Mississippi	X	
Missouri	X	
Montana		17 and younger
Nebraska	X	
Nevada	X	
New Hampshire		
New Jersey	X	
New Mexico		17 and younger
New York	X	
North Carolina	X	
North Dakota		17 and younger (5)
Ohio		17 and younger (6)
Oklahoma		17 and younger
Oregon	X	
Pennsylvania		20 and younger (7)
Rhode Island		20 and younger (7)

South Carolina		20 and younger
South Dakota		17 and younger
Tennessee	X	
Texas		20 and younger (3)
Utah		17 and younger
Vermont	X	
Virginia	X	
Washington	X	
West Virginia	X	
Wisconsin		17 and younger (2)
Wyoming		18 and younger

- (1) Universal laws cover all riders; partial laws cover young riders or some adult riders.
- (2) Alaska's motorcycle helmet use law covers passengers of all ages, operators younger than 18, and operators with instructional permits.
- (3) In Florida and Kentucky, the law requires that all riders younger than 21 years wear helmets, without exception. In Florida, those 21 years and older may ride without helmets only if they can show proof that they are covered by a medical insurance policy. Texas exempts riders 21 years or older if they either 1) can show proof of successfully completing a motorcycle operator training and safety course or 2) can show proof of having a medical insurance policy.
- (4) Motorcycle helmet laws in Kentucky, Maine, Minnesota, and Wisconsin also cover operators with instructional/learner's permits. Maine's motorcycle helmet use law also covers passengers 14 years and younger and passengers if their operators are required to wear a helmet.
- (5) North Dakota's motorcycle helmet use law covers all passengers traveling with operators who are covered by the law.
- (6) Ohio's motorcycle helmet use law covers all operators during the first year of licensure and all passengers of operators who are covered by the law.
- (7) Rhode Island's motorcycle helmet use law covers all operators during the first year of licensure and all passengers. Pennsylvania's motorcycle helmet use law covers all operators during the first two years of licensure unless the operator has completed the safety course approved by the department or the Motorcycle Safety Foundation.

Source: Insurance Institute for Highway Safety, Highway Loss Data Institute.

### MOTORCYCLE HELMET USE, 1994-2006 (1)



(1) Based on a survey of motorcyclists using helmets meeting Department of Transportation standards.

Source: U.S. Department of Transportation, National Occupant Protection Use Survey, National Highway Traffic Safety Administration's National Center for Statistics and Analysis.

**MOTORCYCLIST FATALITIES AND FATALITY RATES, 1995-2005**

Year	Fatalities	Registered motorcycles	Fatality rate per 100,000 registered vehicles	Vehicle miles traveled (millions)	Fatality rate per 100 million vehicle miles traveled
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	27.67
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	68.17	9,577	38.78
2004	4,028	5,780,870	69.68	10,048	40.09
2005	4,553	NA	NA	NA	NA

NA= Data not available.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration; Federal Highway Administration.

**MOTORCYCLIST INJURIES AND INJURY RATES, 1995-2005**

Year	Injuries	Registered motorcycles	Injury rate per 100,000 registered vehicles	Vehicle miles traveled (millions)	Injury rate per 100 million vehicle miles traveled
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	9,639	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	5,780,870	1,321	10,048	760
2005	87,000	NA	NA	NA	NA

NA= Data not available.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration; Federal Highway Administration.

**OCCUPANT FATALITY RATES BY VEHICLE TYPE, 1994 AND 2004**

Fatality rate	Motorcycles	Passenger cars	Light trucks
1994			
Per 100,000 registered vehicles	61.76	18.03	14.97
Per 100 million vehicle miles traveled	22.66	1.51	1.25
2004			
Per 100,000 registered vehicles	69.68	14.4	14.09
Per 100 million vehicle miles traveled	40.09	1.18	1.16

Percent Change, 1994-2004

Per 100,000 registered vehicles	12.82%	-20.14%	5.86%
Per 100 million vehicle miles traveled	76.94	-21.59	-7.57

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration.

## MOTORCYCLE RIDERS KILLED OR INJURED BY TIME OF DAY AND DAY OF WEEK, 2004

Time of day	Day of Week				Total	
	Weekday		Weekend			
	Number	Percent	Number	Percent	Number	Percent
<b>Motorcycle riders killed</b>						
Midnight to 3 am	148	7.8%	258	12.2%	406	10.1%
3 am to 6 am	55	2.9	72	3.4	127	3.2
6 am to 9 am	132	7.0	34	1.6	166	4.1
9 am to Noon	164	8.7	167	7.9	331	8.3
Noon to 3 pm	298	15.8	292	13.9	590	14.7
3 pm to 6 pm	428	22.6	438	20.8	866	21.6
6 pm to 9 pm	374	19.8	476	22.6	850	21.2
9 pm to Midnight	283	15.0	353	16.8	636	15.9
Unknown	9	0.5	17	0.8	36	0.9
<b>Total</b>	<b>1,891</b>	<b>100.0</b>	<b>2,107</b>	<b>100.0</b>	<b>4,008</b> <b>(1)</b>	<b>100.0</b>

<b>Motorcycle riders injured</b>						
Time of day	Number	Percent	Number	Percent	Number	Percent
Midnight to 3 am	1,000	3.1%	2,000	4.6%	3,000	3.8%
3 am to 6 am	1,000	1.5	1,000	2.9	2,000	2.1
6 am to 9 am	3,000	7.0	1,000	3.3	4,000	5.3
9 am to Noon	4,000	10.8	4,000	10.4	8,000	10.6
Noon to 3 pm	8,000	18.9	8,000	23.4	16,000	20.9
3 pm to 6 pm	11,000	27.4	9,000	25.6	20,000	26.6
6 pm to 9 pm	9,000	21.0	7,000	19.6	16,000	20.4
9 pm to Midnight	4,000	10.3	4,000	10.3	8,000	10.3
<b>Total</b>	<b>42,000</b>	<b>100.0</b>	<b>35,000</b>	<b>100.0</b>	<b>76,000</b>	<b>100.0</b>

(1) Includes 10 motorcycle riders killed on unknown day of week.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration.

## VEHICLES INVOLVED IN CRASHES BY VEHICLE TYPE AND CRASH SEVERITY, 2004

Vehicle type	Crash severity							
	Fatal		Injury		Property damage only		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Passenger car	25,507	43.7%	1,990,000	58.3%	4,216,000	56.3%	6,232,000	56.8%
Light truck	22,337	38.2	1,246,000	36.5	2,886,000	38.5	4,154,000	37.9
Large truck	4,862	8.3	87,000	2.5	324,000	4.3	416,000	3.8
<b>Motorcycle</b>	<b>4,100</b>	<b>7.0</b>	<b>70,000</b>	<b>2.1</b>	<b>13,000</b>	<b>0.2</b>	<b>88,000</b>	<b>0.8</b>
Bus	275	0.5	13,000	0.4	39,000	0.5	52,000	0.5
Other	635	1.1	9,000	0.3	10,000	0.1	20,000	0.2
<b>Total</b>	<b>58,414 (1)</b>	<b>100.0</b>	<b>3,415,000</b>	<b>100.0</b>	<b>7,489,000</b>	<b>100.0</b>	<b>10,962,000</b>	<b>100.0</b>

(1) Includes 698 vehicles of unknown type involved in fatal crashes.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration.

## PERSONS KILLED OR INJURED IN ALCOHOL-RELATED CRASHES BY PERSON TYPE AND INJURY SEVERITY, 2005

Person type	Persons killed (1)		Persons injured by injury severity (2)			Total injured
	Number	Percent of total	Incapacitating	Non-incapacitating	Other	
Vehicle occupants						
Driver	9,312	55.1%	27,777	59,661	75,000	162,439
Passenger	3,270	19.4	11,931	22,076	37,052	71,059
Unknown occupant	38	0.2	(3)	(3)	(3)	(3)
<b>Total</b>	<b>12,620</b>	<b>74.7</b>	<b>39,708</b>	<b>81,738</b>	<b>112,053</b>	<b>233,498</b>
Motorcycle riders	1,751	10.4	3,126	3,060	664	6,850
Nonmotorists						
Pedestrian	2,180	12.9	3,609	2,829	2,529	8,968
Pedalcyclist	281	1.7	647	1,647	894	3,188
Other/unknown	54	0.3	184	367	782	1,333
<b>Total</b>	<b>2,515</b>	<b>14.9</b>	<b>4,441</b>	<b>4,843</b>	<b>4,205</b>	<b>13,488</b>
<b>Total</b>	<b>16,885</b>	<b>100.0</b>	<b>47,275</b>	<b>89,640</b>	<b>116,921</b>	<b>253,836</b>

(1) Blood alcohol concentration (BAC) of 0.01 grams per deciliter or greater in the crash. NHTSA estimates alcohol involvement when alcohol test results are unknown.

(2) Police-reported alcohol involvement in the crash.

(3) Less than 500.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration.

## DRIVERS IN FATAL CRASHES BY BLOOD ALCOHOL CONCENTRATION (BAC) AND VEHICLE TYPE, 1994-2004 (1)

Year	Passenger car			Light truck			Large truck			Motorcycles		
	Total	Percent		Total	Percent		Total	Percent		Total	Percent	
		BAC = 0.01+	BAC = 0.08+		BAC = 0.01+	BAC = 0.08+		BAC = 0.01+	BAC = 0.08+		BAC = 0.01+	BAC = 0.08+
1994	30,103	28%	24%	16,235	29%	25%	4,592	3%	2%	2,330	41%	33%
1995	30,773	27	23	17,483	29	25	4,410	4	2	2,262	42	33
1996	30,595	27	23	18,118	28	24	4,703	3	2	2,175	43	35
1997	29,896	26	22	18,502	26	23	4,859	3	2	2,159	41	32
1998	28,907	26	21	19,247	26	22	4,905	2	1	2,333	41	34
1999	27,878	25	21	19,865	26	22	4,868	3	1	2,528	40	33
2000	27,661	28	24	20,393	26	22	4,948	3	1	2,971	40	32
2001	27,444	27	23	20,704	27	23	4,779	2	1	3,261	37	29
2002	27,236	27	22	21,562	27	23	4,550	3	2	3,363	39	31
2003	26,422	26	22	22,172	25	22	4,658	2	1	3,800	36	29
2004	25,393	26	22	22,217	25	21	4,799	2	1	4,095	34	27

(1) NHTSA estimates alcohol involvement when alcohol test results are unknown.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration.