

## Motorcycles and Mopeds

In 2002<sup>1</sup> 5.526 occupants of motorcycles and mopeds were killed in traffic accidents in 14 European Union countries, 3,8% fewer than the 5.739 motorcycle and moped rider fatalities reported in 2000 in the same countries. However, there was a significant reduction of 13,5% during the decade for the same countries.

**Table 1. Fatalities of Motorcycle and Moped occupants per 1.000.000 inhabitants**

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
BE	23,2	23,2	18,5	17,2	19,0	19,5	19,4	18,0	20,5	-
DK	11,8	14,6	12,1	9,3	8,7	11,3	12,6	13,3	10,3	11,5
EL	51,0	54,4	59,3	50,7	47,1	52,6	51,7	45,5	46,0	36,0
ES	24,2	21,9	22,0	21,4	22,8	23,5	22,7	21,7	20,6	19,2
FR	26,2	24,1	23,2	22,6	24,4	24,5	25,2	24,2	26,1	24,4
IE	14,8	15,3	15,8	16,0	18,6	10,0	11,5	10,6	13,1	11,3
IT	23,3	23,3	20,7	20,8	21,2	20,7	-	-	-	-
LU	5,1	12,5	9,9	14,6	7,2	16,6	11,7	18,5	13,7	-
NL	12,9	13,7	13,5	12,8	11,6	10,5	11,5	12,4	9,6	11,9
AT	21,9	20,1	19,1	16,5	21,2	15,1	18,9	19,5	18,0	16,8
PT	72,7	75,9	79,2	73,0	67,5	54,8	49,5	42,3	38,9	34,6
FI	5,1	6,3	6,5	6,4	4,7	4,9	4,1	3,7	4,4	5,6
SE	6,2	4,7	4,7	6,1	5,5	5,9	5,4	5,5	5,3	5,5
UK	7,6	7,8	7,8	7,6	8,9	8,6	9,4	10,3	9,9	10,6

Source: CARE Database / EC

Date of query: February 2005

The fatality rates per 1.000.000 inhabitants of motorcycle and moped occupants in Portugal and Greece are much higher than the respective rates in the other 12 European countries as is also the average rate of the European Union for 2002<sup>1</sup>.

**A reduction of 13,5% in the motorcycle and moped occupant fatalities is observed during the last decade in 14 EU countries**

<sup>1</sup> Or last available year

**Figure 1. Motorcycle / Moped Fatalities by 1.000.000 inhabitants  
Evolution 1993 - 2002**

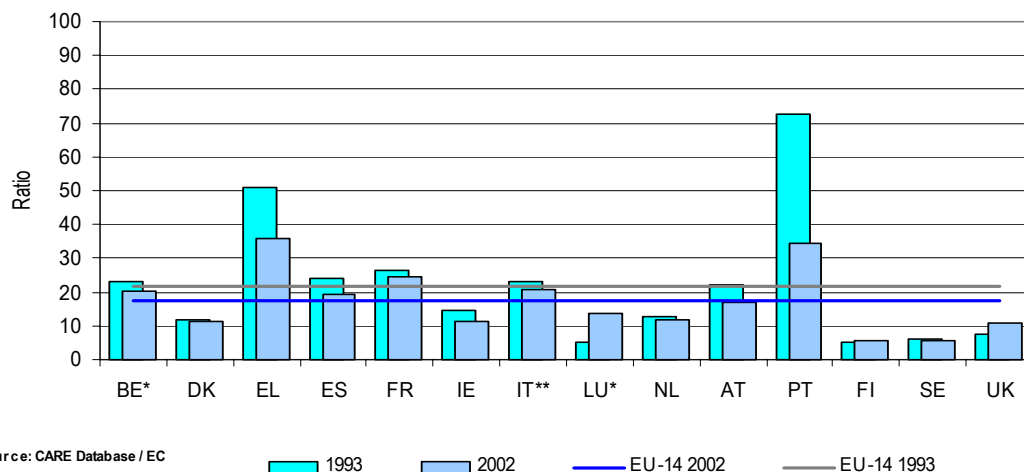


Figure 1 indicates that between 1993 and 2002 the fatality rate of motorcycle and moped occupants declined by 21% (from 21,9 in 1993 to 17,3 in 2002), compared with a 23,4% decrease (from 109,9 to 86,5) in the corresponding fatality rate for passenger car and taxi occupants. Portugal is the country, which shows the most significant improvement during this last decade (52,4% decrease), whereas in Luxemburg and in the United Kingdom the fatality rates have increased but are still lower than the average rate of all EU -14 countries.

**Portugal is the country where the most significant reduction in motorcycle and moped fatalities is observed since 1993**

**Table 2. Percentages of Motorcycle and Moped occupant Fatalities by the total number of road accident fatalities**

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
BE	14,1%	13,8%	12,9%	12,8%	14,1%	13,3%	14,2%	12,5%	14,1%	-
DK	10,9%	13,9%	10,8%	9,5%	9,4%	12,0%	13,0%	14,3%	12,8%	13,4%
EL	24,6%	25,4%	26,0%	25,1%	24,0%	26,1%	26,5%	24,3%	26,8%	24,2%
ES	14,9%	15,3%	15,0%	15,4%	16,0%	15,6%	15,7%	15,0%	15,1%	14,7%
FR	15,2%	15,4%	15,1%	15,3%	16,8%	16,0%	17,4%	17,6%	18,9%	18,9%
IE	12,3%	13,6%	13,0%	12,8%	14,4%	8,1%	10,4%	9,6%	12,1%	11,6%
IT	18,5%	18,7%	16,9%	17,9%	18,2%	18,9%	-	-	-	-
LU	2,6%	7,7%	5,7%	8,5%	5,0%	12,3%	8,6%	10,5%	8,6%	-
NL	15,9%	16,2%	15,6%	16,8%	15,5%	15,5%	16,7%	18,1%	15,5%	19,4%
AT	13,5%	11,9%	12,6%	12,8%	15,3%	12,5%	14,0%	16,0%	15,0%	14,1%
PT	26,8%	30,3%	29,3%	26,8%	27,0%	26,1%	24,8%	23,0%	23,9%	21,6%
FI	5,4%	6,7%	7,5%	8,2%	5,5%	6,3%	4,9%	4,8%	5,3%	7,0%
SV	8,5%	7,0%	7,2%	10,1%	9,1%	9,8%	8,3%	8,3%	8,1%	8,8%
UK	11,2%	11,9%	12,1%	12,0%	14,0%	14,2%	15,6%	17,1%	16,5%	17,5%

Source: CARE Database / EC

Date of query: February 2005

In Greece, almost one quarter of the total number of road accident fatalities (24,2%) refers to motorcycle and moped occupants, as is indicated in Table 2. On the contrary, in Sweden and in Finland motorcycle and moped fatalities constitute the minority of the road accident fatalities, even though an increase in the percentages could be observed since 1999 in both countries.

## Vehicle Type

A more appropriate ratio for countries comparisons is the number of vehicles involved in fatal accidents, divided by the respective vehicle number. Taking this vehicle-ratio, in 2002 1.466 motorcycles and mopeds were involved in fatal road accidents in France, leading to a ratio of 60,1 when divided by the total motorcycle and moped fleet of the country. The respective rate for passenger cars and taxis is 26,2. In Table 3, it is shown that in Belgium and France the proportion of motorcycles and mopeds involved in fatal accidents is far too high. The increased rates for mopeds and motorcycles also in Denmark, United Kingdom and Portugal, compared to the respective rates for passenger cars and taxis, indicate the severity of motorcycle/moped accidents in these countries. However, in some cases (Denmark) the absolute numbers are small (70 motorcycles/mopeds), thus conclusions might be misleading.

**Table 3. Vehicles involved in Fatal Accidents - 2002**

	Motorcycles/ Mopeds	Cars/taxis	Motorcycles/Mopeds * 100.000	Cars/taxis * 100.000	Rate of Motorcycles/Mopeds	Rate of Cars/Taxis
BE*	222	1.472	2,90	47,87	76,6	30,7
DK	70	415	0,78	18,88	89,7	22,0
EL	437	1.204	23,40	34,23	18,7	35,2
ES	695	4.326	35,96	187,33	19,3	23,1
FR	1.466	7.652	24,40	291,60	60,1	26,2
IE	46	325	3,00	13,85	15,3	23,5
IT**	1.236	5.826	88,30	337,06	14,0	17,3
LU	6	67	0,34	2,80	17,6	23,9
NL	223	816	9,65	67,11	23,1	12,2
AT	144	911	5,97	39,87	24,1	22,8
PT	329	1.033	7,09	57,88	46,4	17,8
FI	30	350	2,05	21,95	14,6	15,9
SE	51	503	3,29	40,43	15,5	12,4
UK	713	3.855	12,12	257,83	58,8	15,0

\* Data 2001

\*\* Data 1998

Source: CARE Database / EC

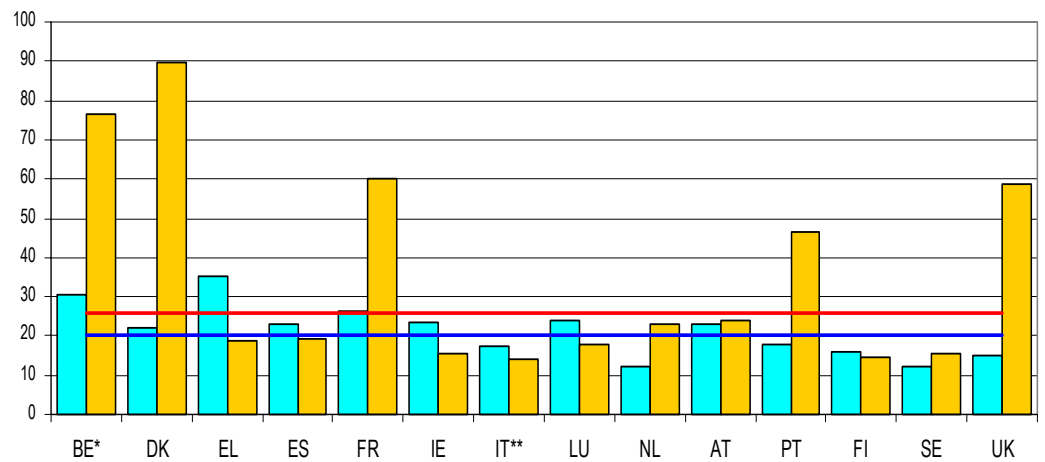
Date of query: February 2005

Vehicle fleet - Source: Eurostat / UN-ECE

As can be seen from Figure 2, there are eight European countries, where the ratios of cars and taxis involved in fatal accidents are much higher than the average European ratio, whereas in the case of mopeds and motorcycles, only five countries exceed the respective average ratio.

Figure 2. Vehicles involved in Fatal Accidents

Belgium, France and United Kingdom show a high vehicle-ratio for motorcycles and mopeds involved in fatal accidents



Source: CARE Database / EC

Rate of Cars/Taxis

Rate of Motorcycles/Mopeds

EU-14 Cars / Taxis 2002

EU-14 Motorcycles / Mopeds 2002

Motorcycles and mopeds present the second higher involvement in fatal road accidents (after passenger cars / taxis) across the European countries, compared with other vehicle types, as demonstrated in Table 4.

Table 4. Fatal Accidents by Vehicle Type - 2002

	Agricultural tractor	Bus or coach	Car or taxi	Heavy goods vehicle	Lorry, under 3.5 tonnes	Moped	Motorcycle	Other	Pedal cycle	Total
BE*	17	26	1.121	180	107	63	157	15	134	1.820
DK	6	19	301	68	63	42	27	5	53	584
ES	33	81	3.146	656	589	309	358	59	84	5.315
EL	66	47	968	182	213	57	360	18	16	1.927
FR	75	89	5.471	823	300	381	1.036	60	218	8.453
IE		8	265	38	43		45	27	19	445
IT**	38	86	4.325	1.046		686	511	109	351	7.152
LU	2	4	48	8					1	63
NL	15	21	649	118	112	113	100	29	178	1.335
AT	26	14	672	117	62	47	92	42	81	1.153
PT	35	37	838	169	296	13	305	23	54	1.770
FI	5	17	273	92	31	7	23	16	54	518
SV	10	25	396	110	26	13	37	65	44	726
UK	29	147	2.596	506	283	23	633	64	140	4.421
EU-14	357	621	21.069	4.113	2.125	1.754	3.684	532	1.427	35.682
%	1,0%	1,7%	59,1%	11,5%	6,0%	4,9%	10,3%	1,5%	4,0%	100,0%

(At least one vehicle involved)

\* Data 2001

\*\* Data 1998

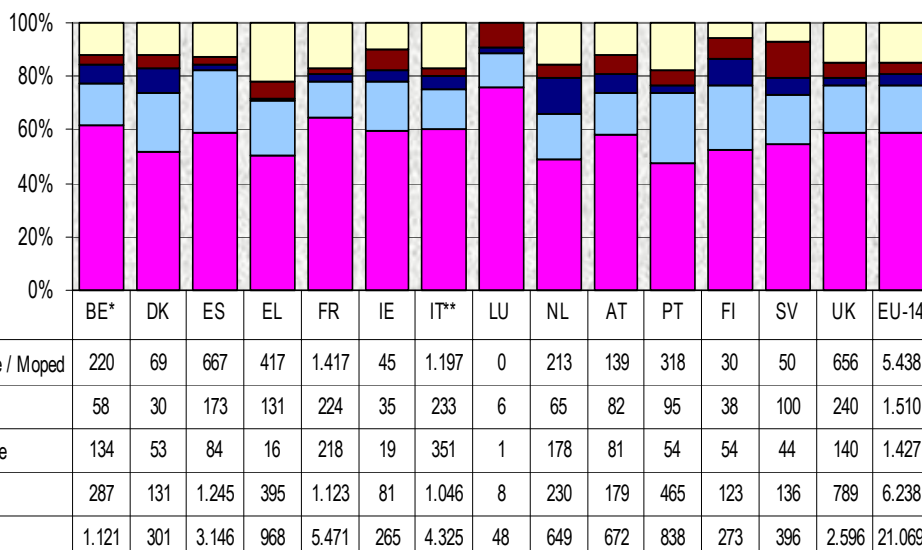
Source: CARE Database / EC

Date of query: February 2005

As displayed in Figure 3, in 2002 Greece and Portugal show higher percentages of motorcycle/moped fatal accidents, 21,6% and 18% of the total fatal road accidents respectively.

High rates observed in Italy and Spain, provide insight into this international problem and a general conclusion is that motorcycle/moped fatal accidents in Southern European countries constitute a major traffic issue.

Figure 3. Fatal Accidents by Vehicle type



Source: CARE Database / EC

Motorcycle and moped fatal accidents constitute a major traffic issue in Southern European countries

## Age and Gender

During 2002<sup>1</sup>, more than 32% of the total motorcycle and moped occupant fatalities (1.757 people) referred to people younger than 25 years old, comparing to the respective percentage for car/taxi occupants, which is 28%. It is a common ascertainment in all 13 European Union countries that young people are prone to motorcycle and moped fatal accidents.

Age	Gender	BE*	DK	EL	ES	FR	IE	IT**	NL	AT	PT	FI	SE	UK
<16	Female	0%	1,6%	0%	1,1%	0,8%	0%	0,6%	1,0%	0,7%	0%	3,4%	2,0%	0%
	Male	0,5%	1,6%	0,3%	3,2%	2,2%	0%	3,6%	1,0%	0,7%	0,9%	3,4%	8,2%	0,5%
16-24	Female	5,7%	1,6%	4,3%	3,6%	2,1%	2,3%	4,7%	3,1%	1,5%	1,1%	0%	0,0%	1,3%
	Male	26,7%	19,4%	30,5%	28,6%	27,2%	45,5%	26,9%	22,5%	23,7%	25,9%	31,0%	30,6%	21,6%
25-64	Female	3,8%	3,2%	3,8%	4,6%	4,0%	6,8%	4,0%	4,7%	4,4%	2,3%	0,0%	4,1%	4,1%
	Male	59,5%	59,7%	52,8%	51,7%	58,6%	45,5%	46,9%	51,3%	56,3%	59,5%	55,2%	49,0%	70,6%
>64	Female	0%	0%	0,5%	0,4%	0,7%	0%	0,8%	3,7%	0,7%	0,9%	3,4%	0%	0%
	Male	3,8%	12,9%	7,9%	6,9%	4,4%	0%	12,4%	12,6%	11,9%	9,5%	3,4%	6,1%	1,9%

Source: CARE Database / EC  
Date of query: February 2005

\* Data 2001  
\*\* Data 1998

During 2002<sup>1</sup>, more than 32% of the total motorcycle and moped fatalities concerned people younger than 25 years old

As indicated in Table 5, more than 91% of the moped and motorcycle occupant fatalities in all countries are male, explained by the fact that motorcycle and moped traffic is still dominated by male riders in most European Union countries. The majority of car and taxi occupant fatalities also mainly concern the male gender, however the proportion is much lower (almost 73%) than the respective of motorcyclists and moped riders, as demonstrated in the following Table 6.

**Table 6. Car and Taxi occupants Fatality distribution by Age, Gender - 2002**

Age	Gender	BE*	DK	EL	ES	FR	IE	IT**	NL	AT	PT	FI	SE	UK
<16	Female	1,7%	0,8%	1,9%	1,3%	1,3%	2,2%	1,2%	0,6%	2,1%	1,6%	1,9%	0,3%	2,4%
	Male	2,1%	1,6%	1,8%	1,4%	1,6%	1,6%	1,0%	1,5%	1,7%	2,8%	0,7%	3,2%	1,9%
16-24	Female	5,2%	6,1%	3,6%	5,1%	6,1%	8,7%	5,7%	6,3%	7,4%	5,8%	5,6%	5,0%	7,8%
	Male	19,0%	19,1%	16,6%	17,8%	21,4%	20,7%	17,5%	25,3%	21,2%	18,4%	20,2%	16,9%	25,4%
25-64	Female	16,0%	15,0%	15,6%	15,7%	13,7%	15,2%	14,7%	12,2%	15,5%	13,5%	13,9%	11,6%	12,3%
	Male	41,2%	38,6%	47,4%	45,1%	38,6%	35,9%	44,7%	37,1%	38,2%	45,1%	39,7%	41,2%	33,4%
>64	Female	4,7%	6,9%	3,7%	5,2%	6,9%	6,0%	4,1%	6,1%	5,9%	4,6%	5,6%	7,1%	7,9%
	Male	10,2%	11,8%	9,4%	8,3%	10,4%	9,8%	11,1%	10,8%	8,0%	8,3%	12,4%	14,8%	9,0%

Source: CARE Database / EC

Date of query: February 2005

\* Data 2001

\*\* Data 1998

## Road Network

**Table 7. Motorcycle and Moped occupants' Fatalities by Road network - 2002**

	Road Type	BE*	DK	EL	ES	FR	IE	IT**	LU*	NL	AT	PT	FI	SE	UK	EU-14
Fatalities	Motorway	10	1	8	15	49		28	2	16	4	10	1		20	164
	Other	200	61	388	769	1402	44	1163	4	175	131	347	28	49	608	5369
% Fatality	Motorway	4,8	1,6	2,0	1,9	3,4		2,4	33,3	8,4	3,0	2,8	3,4		3,2	3,0
	Other	95,2	98,4	98,0	98,1	96,7	100,0	97,6	66,7	91,6	97,0	97,2	96,6	100,0	96,8	97,0

Source: CARE Database / EC

Date of query: February 2005

\* Data 2001

\*\* Data 1998

**The majority of motorcycle and moped fatalities in all 14 EU countries do not occur on motorways but on the remaining road network**

Almost 59.000 motorcycle and moped occupants were killed in road accidents between 1993 and 2002 in the 14 European Union countries. However, a significant reduction of 12% was accomplished since 1993 despite the increased number of motorcycles and mopeds circulating in these countries.

From Table 7 it is obvious that the majority of fatalities in all countries do not occur on motorways but on the non-motorway network. This can be explained by the fact that motorways have controlled access and their connection to the other road network is via grade-separated junctions. The existence of medians, separating opposite traffic flows on motorways, also results in a reduction in the number of motorcycle and moped fatal accidents.

## Area Type

**Table 8. Fatality distribution by Area type - 2002**

Area type	Vehicle	BE*	DK	EL	ES	FR	IE	IT**	NL	AT	PT	FI	SE	UK	EU-13
Inside urban area	Motorcycles /Mopeds	34,3%	38,7%	62,4%	35,8%	40,8%	27,3%	58,9%	40,8%	30,4%	55,2%	27,6%	28,6%	39,5%	45,5%
	Cars/Taxis	22,2%	15,4%	29,5%	7,8%	16,6%	15,8%	31,6%	20,3%	13,7%	24,0%	14,2%	17,9%	26,2%	19,6%
Outside urban area	Motorcycles /Mopeds	65,7%	61,3%	37,6%	64,2%	59,2%	72,7%	41,1%	59,2%	69,6%	44,8%	72,4%	71,4%	60,5%	54,5%
	Cars/Taxis	77,8%	84,6%	70,5%	92,2%	83,4%	84,2%	68,4%	79,7%	86,3%	76,0%	85,8%	82,1%	73,8%	80,4%

Source: CARE Database / EC

Date of query: February 2005

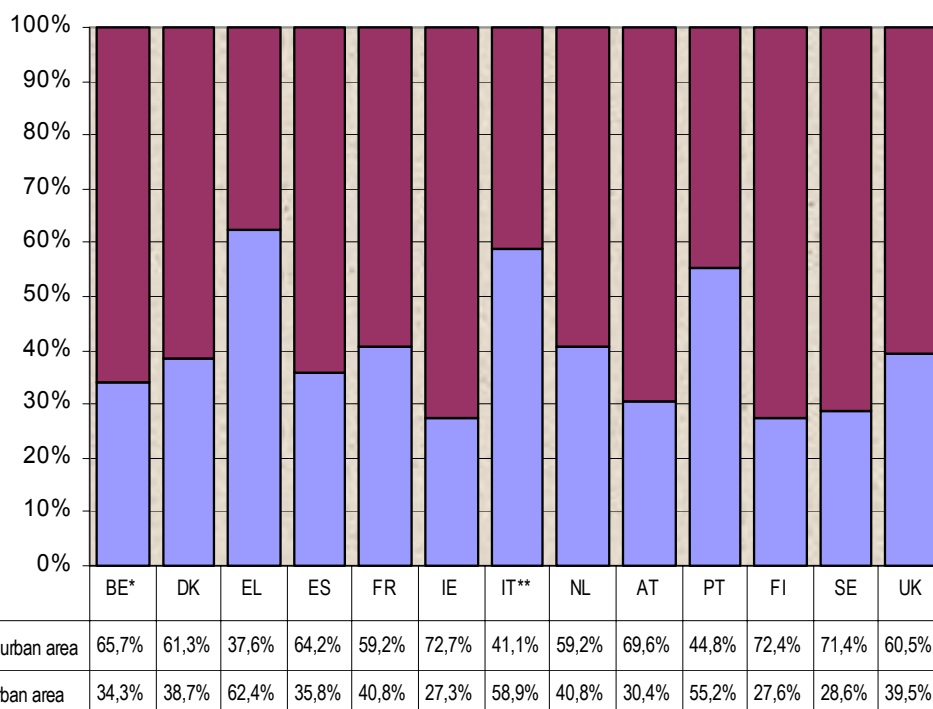
\* Data 2001

\*\* Data 1998

Table 8 shows that in 2002<sup>1</sup>, 2.515 motorcycle and moped occupants were killed inside urban areas in 13 European countries (45,5% of the total motorcycle/moped occupant fatalities), compared to 3.589 car and taxi occupants (20,1% of the total car/taxi occupant fatalities).

Furthermore, 14.242 car/taxi drivers and passengers were killed outside urban areas, compared to 3.011 motorcyclists/mopedists.

**Figure 4. Distribution of Motorcycle / Moped Fatalities by Area Type**



Source: CARE Database / EC

**Greece, Italy and Portugal, are the only countries, where more fatal accidents are recorded inside than outside urban areas**

A note-worthy conclusion deriving from Figure 4 is that Greece, Italy and Portugal are the only European Union countries where more motorcycle and moped occupant fatalities are recorded inside urban areas (62,4%, 58,9% and 55,2% respectively) than outside urban areas.

### Junction Type

Table 9 indicates that one third of all motorcycle and moped occupant fatalities (1.646 persons) occur at a junction, compared to the respective rate for car/taxi occupants in Table 10, which is 15% (2.680 persons).

Crossroad is the junction type where the probability of a fatal motorcycle or moped accident is highest, as is shown in Table 9. Nearly 40% of the total number of motorcycle/moped occupant fatalities recorded at a junction occurred at crossroads.



**Car and taxi occupant fatality rates are higher at level crossing and roundabout junctions, compared to the respective of motorcycles and mopeds**

**Table 9. Motorcycle and Moped occupant Fatalities by Junction type - 2002**

	Not at junction	At junction					Not defined	Total
		crossroad	level crossing	other junction	roundabout	t or y junction		
BE*	136		1	71	2			210
DK	36	11		1	0	14		62
EL							396	396
ES		91		21	22	91	558	783
FR	1.023	192	7	35	15	178		1.450
IE		2		0	0	7	35	44
IT**	770	232	0	176	14			1.192
LU*	3	1		1		1		6
NL	114	37	1		2	34	3	191
AT	76	23	1	0	0	6	29	135
PT	286	26	1		2	34	7	356
FI		2		10			17	29
SE	28	7	0	0	1	13		49
UK	368	36		50	20	154		628
EU-14	2.840			1.646			1.045	5.531
%	51,3%			29,8%			18,9%	

Source: CARE Database / EC  
Date of query: February 2005

\* Data 2001

\*\* Data 1998

As Table 10 indicates, car/taxi fatality rates are higher at level crossing and roundabout junctions, compared to the respective rates of motorcycles and mopeds.

**Table 10. Car and Taxi occupant Fatalities by Junction type - 2002**

	Not at junction	At junction					Not defined	Total
		crossroad	level crossing	other junction	roundabout	t or y junction		
BE*	737			157	5			899
DK	183	29	2	4	1	27		246
EL							793	793
ES		145		59	27	133	2.752	3.117
FR	4.249	291	18	69	22	216		4.864
IE		10		1	2	23	166	202
IT**	2.949	303	2	238	23			3.515
LU*	48	1	0	2		0		51
NL	379	60	5		8	26	1	479
AT	309	39	8	0	1	15	152	524
PT	644	21	21		1	22	5	712
FI		2		39			226	267
SE	280	35	6	8	2	46	2	379
UK	1327	87		117	26	275		1.832
EU-14I	11.105			2.680			4.097	17.882
%	62,1%			15,0%			22,9%	

Source: CARE Database / EC  
Date of query: February 2005

\* Data 2001

\*\* Data 1998

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## **For more information:**

Further statistical information on motorcycle and moped traffic fatalities is available from the CARE database at the Directorate General for Energy and Transport of the European Commission, 28 Rue de Mot, B -1040 Brussels.

Traffic Safety Basic Fact Sheets available from the European Commission concern: Cars-Occupants, Pedestrians, Motorcycle and Mopeds, Children and Motorways.

Detailed data on traffic accidents are published annually by the European Commission in the Annual Statistical Report.

For more information about the project “SafetyNet” which is co-financed by the European Commission, Directorate-General Energy and Transport please contact <http://safetynet.swov.nl/>.