

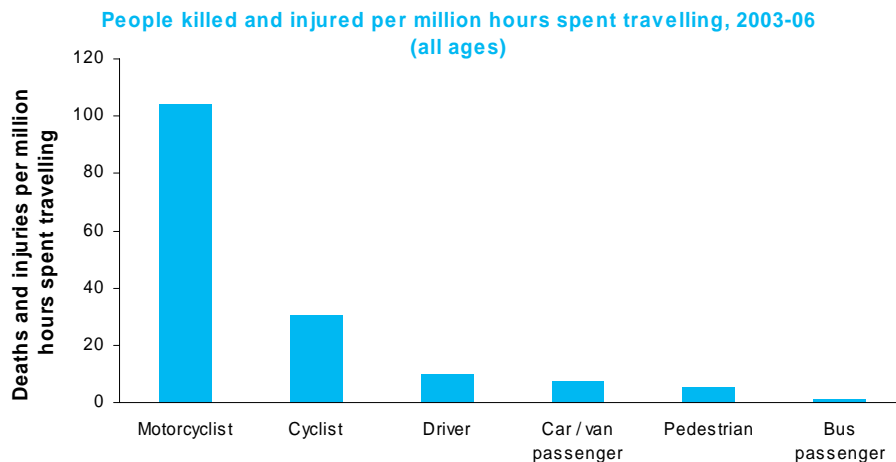
Cyclists

CRASH STATISTICS FOR THE YEAR ENDED 31 DEC 2006

Prepared by Strategy and Sustainability, Ministry of Transport

CRASH FACTSHEET
2007

Cyclists have a number of risk factors that do not affect car drivers. The main risk factors are decreased stability and a much lower level of protection than is given by a car. In addition, a cycle is less visible to other road users than a car or a truck. These factors, combined with the condition of the road environment, give cyclists a high level of risk per time unit travelled, although this risk is significantly lower than the risk carried by motorcyclists.



Research from New Zealand¹ suggests that there may be a volume effect that operates with cyclists; in that the current risk profile of cyclists could be related to the fact that there relatively low numbers of cyclists on New Zealand roads. If the number of individuals in New Zealand that cycled increased then the risk profile of cyclists may improve due to a “safety in numbers” effect. It is also likely that if cycling numbers increased then this would increase demand for the construction of cycle friendly road infrastructure.

In 2006 9 cyclists were killed, 150 were seriously injured and 683 suffered minor injuries as indicated by police reported crashes on New Zealand roads. The total social cost of police reported crashes involving cyclists was approximately \$140 million. That is about 2 percent of the social cost associated with all injury crashes in 2006.

Helmets

- About three-quarters of all cycling deaths are caused by head injuries.
- Cycle Helmets reduce the risk of brain injury by up to 88 percent and the risk of facial injury by up to 65 percent for cyclists of all ages².
- According to the results of the national cycle helmet survey; in 2006 the national cycle helmet wearing rate across all age groups in New Zealand was 94 percent.³

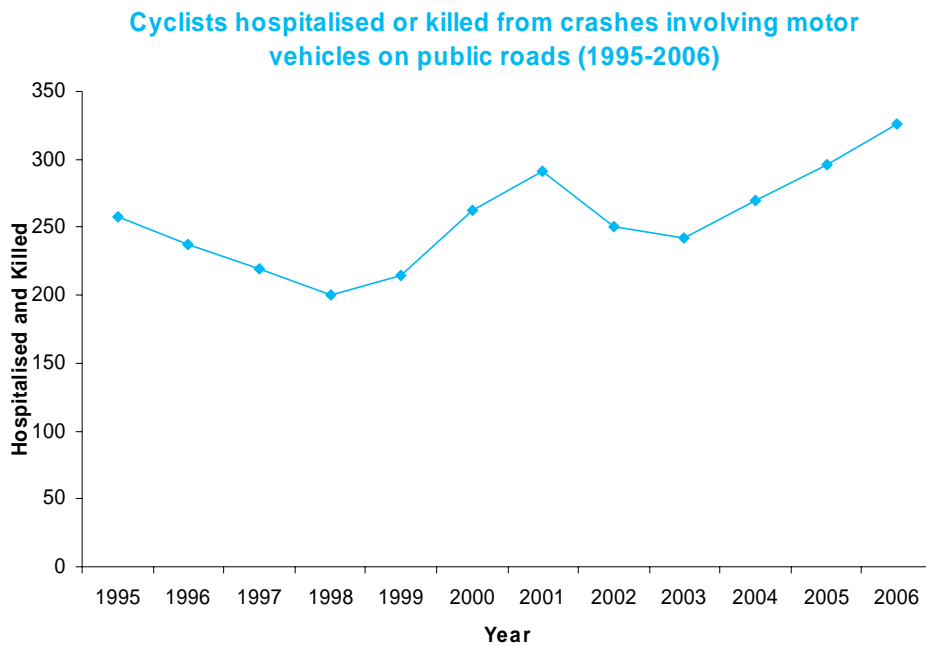
¹ <http://www.itsa.govt.nz/research/reports/289.pdf>

² Macpherson, A. & Spinks, A. (2007) *Bicycle helmet legislation for the uptake of helmet use and prevention of head injuries (Review)* The Cochrane Collaboration, http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD005401/pdf_fs.html

³ <http://www.transport.govt.nz/cycle-helmets-2006/>

Hospitalisations

Not all cyclist injuries are reported to the police. Therefore hospitalisation data from the Ministry of Health can provide a more complete picture of the number of cyclists injured in crashes involving motor vehicles.



During 2002-2006, more than 1300 cyclists required hospitalisation due to injuries received from crashes involving motor vehicles on public roads in New Zealand. An average of about 270 cyclists per year required hospitalisation and in the same period over 48 cyclists were killed from crashes involving motor vehicles on public roads. On average, nearly 10 cyclists are killed each year.

An additional 1750 cyclists were hospitalised in 2006 for incidents not involving a motor vehicle. Many of these incidents, although not all, occurred on public roads.

Time series

Cyclists Killed and Injured 1986-2006 (Police reported crashes)

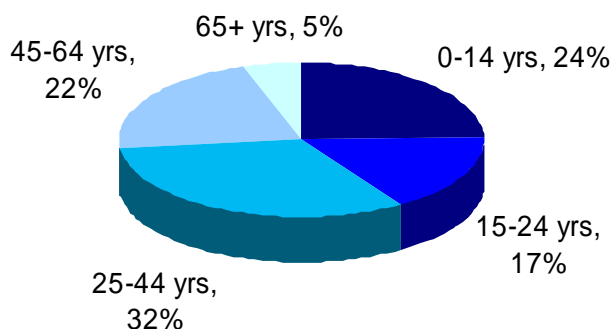
Year	Fatal		Injury	
	Number	% of all fatalities	Number	% of all injuries
1986	22	2.9%	1012	5.4%
1987	18	2.3%	1051	5.6%
1988	20	2.8%	1081	6.2%
1989	20	2.7%	1051	6.3%
1990	27	3.7%	1054	6.0%
1991	22	3.4%	1000	6.0%
1992	17	2.6%	941	5.8%
1993	17	2.8%	910	6.0%
1994	15	2.6%	882	5.3%
1995	15	2.6%	813	4.8%
1996	13	2.5%	754	5.1%
1997	12	2.2%	724	5.4%
1998	16	3.2%	626	5.0%
1999	8	1.6%	619	5.2%
2000	19	4.1%	559	5.1%
2001	10	2.2%	696	5.6%
2002	14	3.5%	771	5.5%
2003	6	1.3%	722	5.0%
2004	7	1.7%	716	5.2%
2005	12	3.0%	751	5.2%
2006	9	2.3%	833	5.5%

Who Gets Injured?

Hospitalisations

Cyclist injuries occur amongst all age groups but adults aged between 25 and 44 years old account for the highest percentage of cyclist hospitalisations.

Hospitalisations of cyclists involved in motor vehicle accidents by age (2002-2006)

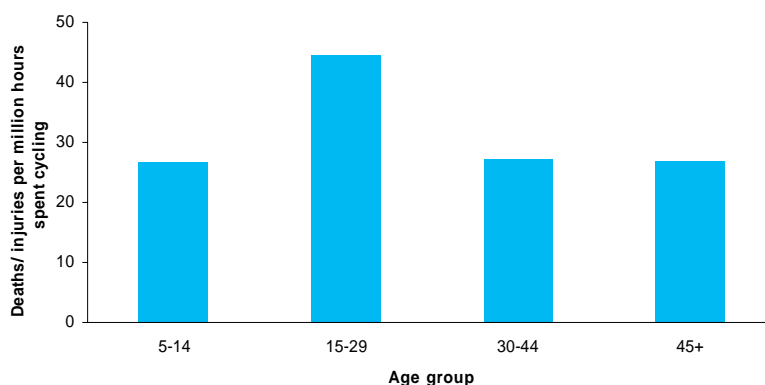


When the relative population of these age groups is considered cyclists aged 0-14 are the group with the most risk of hospitalisation, with a rate of 9.0 per 100,000 head of population in 2006. Cyclists aged 25-44 have the next highest rate of with approximately 8 hospitalisations per 100,000 and those aged 65+ are the least at risk with a rate of 3 hospitalisations per 100,000.

Police reported casualties

If the number of hours spent riding (based on the Ongoing Travel Survey) for different age groups is taken into account, then adult cyclists in the 15-29 year age groups appear to be more at risk of being in a collision with a motor vehicle than younger or older cyclists. These cyclists tend to ride further in a given time than younger cyclists, and may also ride in more dangerous traffic conditions (e.g. on major commuting routes in cities and on the open road). This suggests that commuting cyclists may be a potential 'at-risk' group.

Cyclists killed and injured per million hours spent cycling (not fragility adjusted)



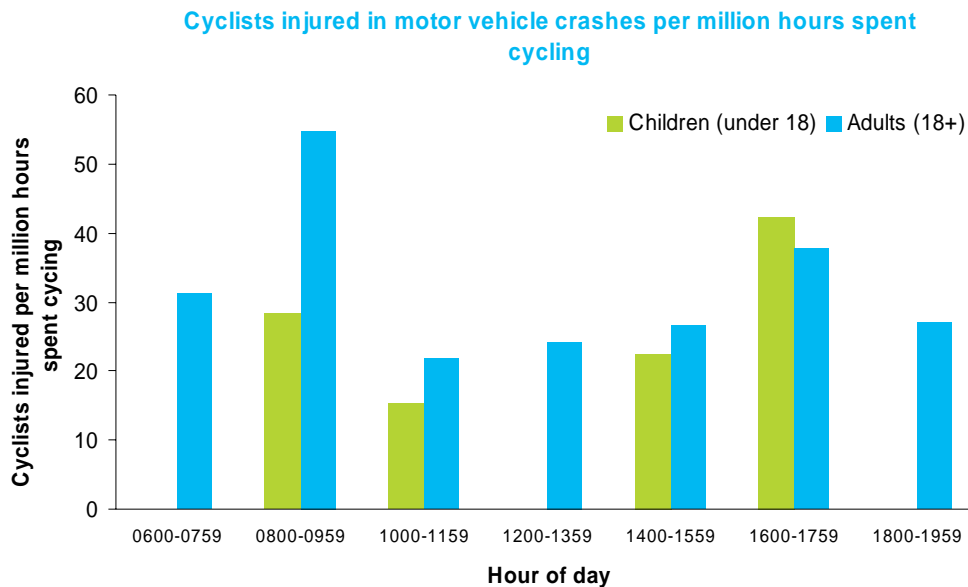
Source: Crash Analysis System; Ongoing NZ Household Travel Survey, Jul 2003 - Jun 2006

Most casualties are male

- 79 percent of all hospitalised cyclists, and 73 percent of cyclists who die and are seriously injured, are male.

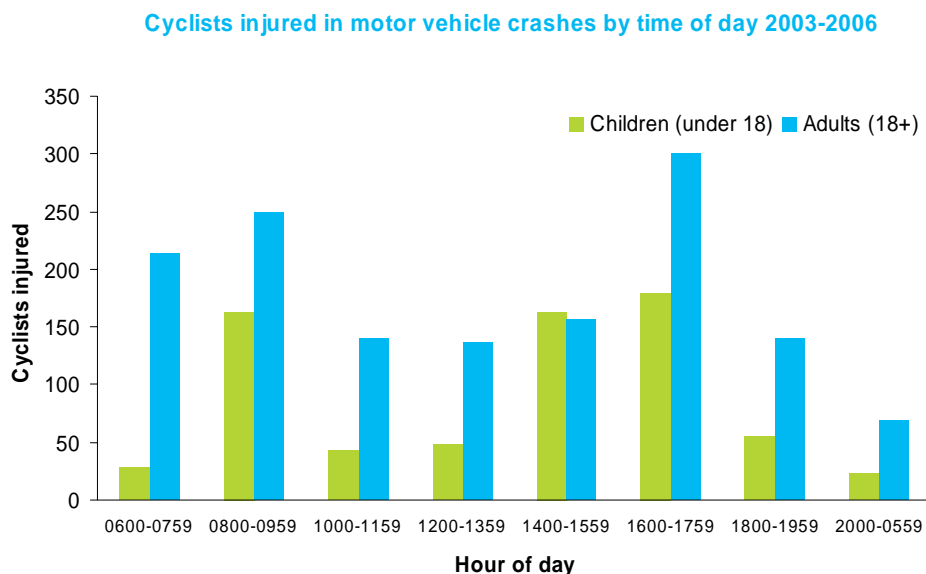
When and where do injuries occur?

If the number of reported cyclist injuries (2003-2006) is adjusted by the time spent riding (based on the on-going travel survey) for time of day, both children and adults are found to be at have a high-risk of injury around 4-6pm. This probably reflects that it is getting dark which makes it harder to see cyclists between these times. Cyclists also have high risk of injury around 8-10am, especially adult cyclists. This probably reflects the morning commute when many cyclists are on the road.



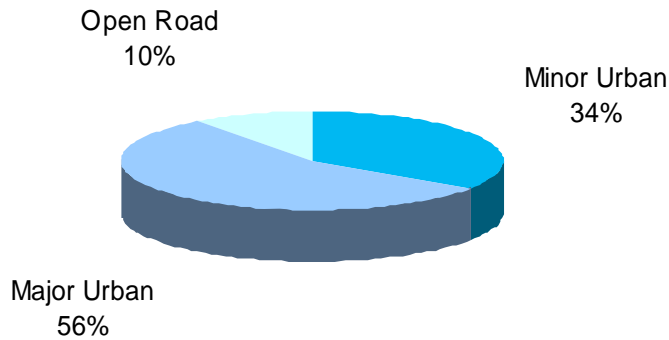
Note: Values have not been calculated between or for children for 0600 - 0759, 1200-1359 and 1800-1959 as the number of trips and/or reported injuries was too small to provide reliable estimates.

The graph below shows the absolute numbers of cyclists injured in motor vehicle crashes. Much like the risk adjusted graph above, it shows that the morning (8-10am) and the early evening (4-6pm) are the times in which the greatest numbers of cyclists are injured in crashes involving motor vehicles.



Approximately nine out of ten reported casualties (2002-2006) for cyclists occur on urban roads (roads with a speed limit of 70km/h or less) in New Zealand. Furthermore over half of all cyclist casualties occur on major urban roads (typically busy arterials) rather than on the minor urban roads that mainly provide access to abutting properties. However over 50 percent of fatalities involving cyclists occur on the open road due to the high impact speeds associated with crashes on this type of road.

Police reported casualties for cyclists by road type 2002 - 2006

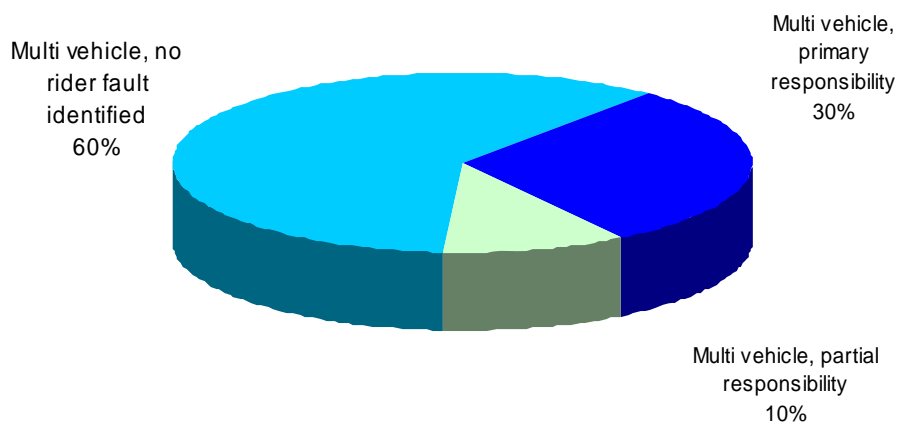


Three specific crash movements each account for more than 10 percent of all reported crashes involving a cyclist and a motor vehicle.

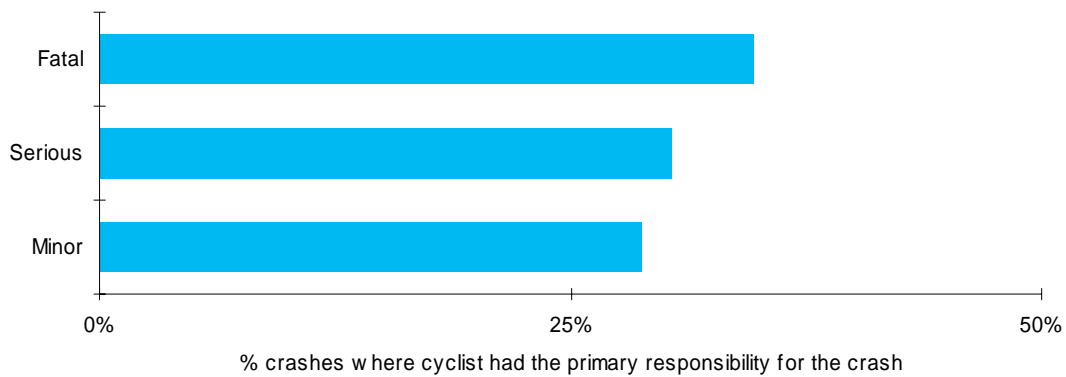
<p>RIGHT ANGLE (70° TO 110°)</p>	Crossing (No Turns)	15.7%	This crash type involves a collision at a right angle, typically when both parties involved are moving straight through an intersection.
<p>MAKING TURN</p>	Right Turn Against	14.5%	Approximately 75 percent of this crash type involves another vehicle turning in front of the cyclist. In 25 percent of cases it is the cyclist that is turning at the time of the crash.
<p>RIGHT TURN RIGHT SIDE</p>	Crossing (Vehicle Turning)	11.7%	Approximately 85 percent of this crash type involves another vehicle turning in front of the cyclist while crossing an intersection. In the remaining 15 percent of cases it is the cyclist that is turning across the intersection at the time of the crash.

Who was at fault?

Cyclist fault in motor vehicle crashes 2002-2006



Percentage of cyclist-vehicle crashes in which a cyclist had the primary responsibility for the crash 2002- 2006



Cyclists are found to have primary responsibility in only 30 percent of all cyclist-vehicle crashes in which they are injured or killed. As the severity of the crash increases there is a slight increase in the proportion of cyclists found to have the primary responsibility.

Speed

The faster a driver is going the more difficult it is for them to avoid hitting a cyclist that is in their path. An alert driver travelling at 50km/h will travel 37 metres before coming to a full stop. The same driver travelling 100km/h will move 5 metres further than this before they can even react and even once they have started braking they will travel a further 69 metres before coming to a full stop.

The speed at which a cyclist is hit is vitally important in determining how seriously they will be injured. A cyclist hit at 32km/h has a 95 percent chance of survival. If they are hit at 48km/h their survival chance decreases to 55 percent. Finally, once the impact speed reaches 70km/h the survival chance is virtually zero. The risks speed poses to more vulnerable cyclists such as the elderly and children is likely to be even higher due to their natural fragility.

For further information on crash statistics see *Motor Vehicle Crashes in New Zealand*, the annual statistical statement produced by the Ministry of Transport. This publication is available in secondary school libraries and many public libraries.

Enquires relating to crash statistics may be directed to the Ministry of Transport, PO Box 3175, Wellington, or by email on info@transport.govt.nz. For more information about road safety, visit the Ministry of Transport website at www.transport.govt.nz.

"Cyclists" was prepared by Strategy and Sustainability, Ministry of Transport, July 2007.