



# Fatigue

CRASH STATISTICS FOR THE YEAR ENDED 31 DEC 2006

Prepared by Strategy and Sustainability, Ministry of Transport

CRASH FACTSHEET

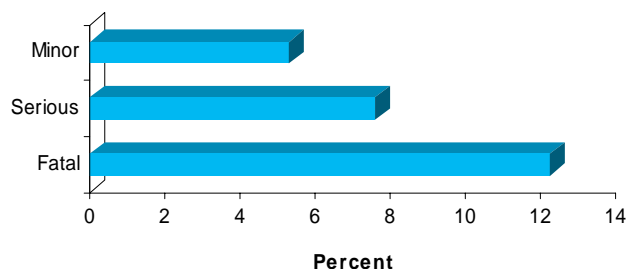
2007

Fatigue is a physiological condition that can occur long before you fall asleep at the wheel. It has negative impact on your reaction time, your ability to concentrate and your general understanding of the road and traffic around you. The three main causes of fatigue are<sup>1</sup>;

- *Sleep loss* – This is the most commonly known cause of fatigue. Different individuals require different levels of sleep, although the average is 7 to 8 hours of sleep a day. If you don't get a full nights sleep then it's likely to cause fatigue, and it can build up over time if your sleep continues to be restricted.
- *Circadian rhythms* – Everybody has a built in body clock in the brain that biologically determines when we will feel sleepy. These circadian rhythms program us to feel at our most sleepy between 3am and 5am in the morning, and between 3 pm and 5 pm in the afternoon.
- *Time spent driving/Working/etc* – Research shows that the longer someone spends driving without a break, the greater their level of fatigue. Also, the time spent in other activities such as work, school, etc, before driving can increase fatigue and affect subsequent driving.

In 2006 fatigue was identified as a contributing factor in 38 fatal traffic crashes, 157 serious injury crashes and 475 minor injury crashes. These crashes resulted in 41 deaths, 219 serious injuries and 682 minor injuries. The total social cost of crashes involving driver fatigue was about \$290 million that is about 9 percent of the social cost associated with all injury crashes. However, fatigue is difficult to identify and recognise as having a role in an accident. Research suggests that the contribution of fatigue to accidents may be under represented in the police reported crash system that has been used for this factsheet and so fatigue may factor in more accidents than are reported here.

Percentage of crashes with fatigue as a factor  
(2004-2006)

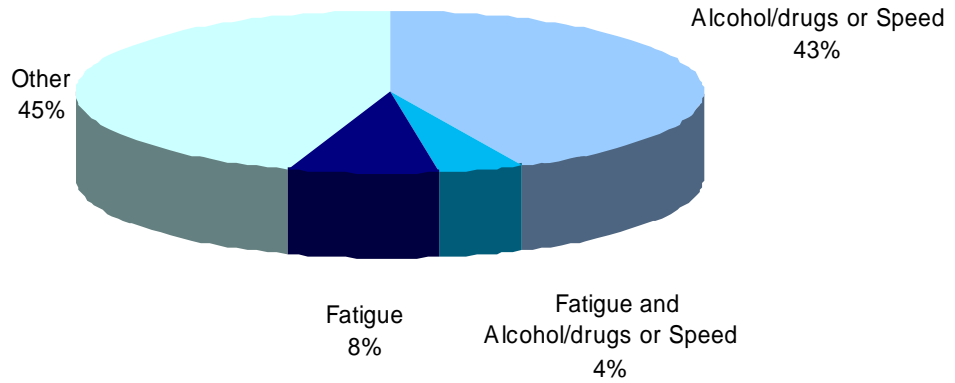


As crash severity increases, so does the involvement of driver fatigue. In New Zealand, over the years 2004 to 2006, driver fatigue was a factor in 12 percent of fatal crashes, 8 percent of serious injury crashes and 5 percent of minor injury crashes.

Fatigue in combination with factors such as speed and/or alcohol/drugs increases the risk of an accident. The faster an individual drives the less time they have to react; this becomes even more dangerous when combined with the slower reactions already caused by fatigue. Similarly even small amounts of alcohol/drugs can combine with fatigue to significantly affect driving ability. Therefore, of 130 fatigue related fatal crashes for the 3 year period 2004 to 2006, approximately 32 percent also had alcohol/drugs as a contributing factor and approximately 10 percent also had speed as a contributing factor.

<sup>1</sup> For additional information on the causes of fatigue and how to prevent them see the Land Transport New Zealand Fatigue Factsheet here <http://www.landtransport.govt.nz/factsheets/24.html>

### Fatigue, speed and alcohol/drugs in fatal crashes (2004-2006)



Between 2004 and 2006, 89 percent of the 130 fatal crashes that involved fatigue as a contributing factor occurred on the open road. A further 11 percent occurred in urban areas.

### Who dies?

For every 100 drivers or riders killed in road crashes where fatigue is a contributing factor, 38 of their passengers as well as 27 road users die with them.

Deaths in crashes where driver fatigue was a contributing factor (2004-2006)				
Age	Fatigue involved drivers	Passengers with Fatigue involved drivers	Other road users	Percentage of all deaths
0-14	0	6	1	9%
15-19	7	12	5	11%
20-24	17	3	1	14%
25-29	8	1	0	12%
30-39	15	3	0	12%
40-49	17	1	9	15%
50-59	9	2	4	13%
60+	16	6	4	11%
Unknown	2	1	1	19%
<b>Total</b>	<b>91</b>	<b>35</b>	<b>25</b>	<b>12%</b>

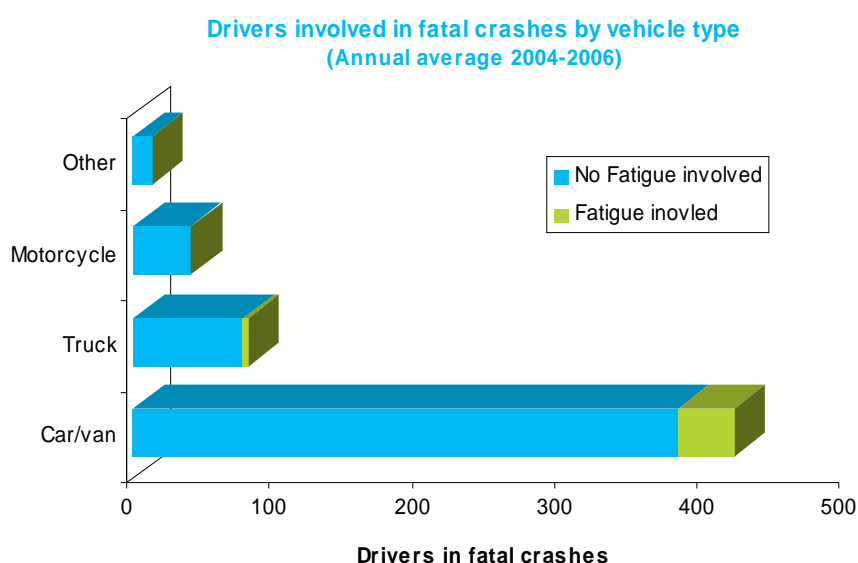
## Time series

### Crashes and casualties with driver fatigue as a contributing factor

Year	Crashes with driver fatigue as a factor				Casualties from crashes with driver fatigue as a factor			
	Fatal		Injury		Deaths		Injuries	
	Number	%	Number	%	Number	%	Number	%
1995	40	8%	553	5%	45	8%	810	5%
1996	40	9%	449	4%	41	8%	705	5%
1997	53	11%	425	5%	58	11%	688	5%
1998	22	5%	468	6%	25	5%	722	6%
1999	55	13%	450	6%	76	15%	749	6%
2000	54	14%	439	6%	69	15%	737	7%
2001	48	12%	510	6%	61	13%	835	7%
2002	39	11%	572	6%	42	10%	835	6%
2003	54	13%	587	6%	65	14%	864	6%
2004	52	14%	577	6%	60	14%	816	6%
2005	39	12%	610	6%	47	12%	888	6%
2006	38	11%	632	6%	41	11%	901	6%

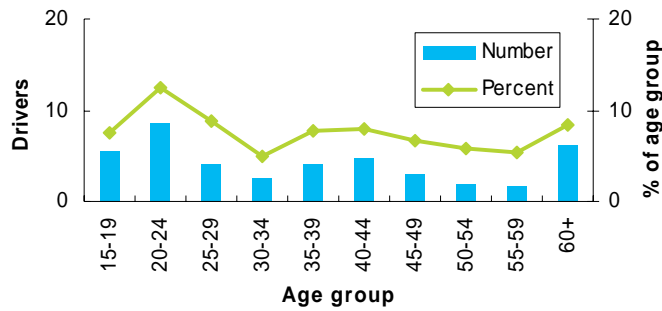
**Note:** The table shows crashes and all casualties from police reported crashes where at least one driver was affected by fatigue. Not included are the crashes where only the pedestrians, cyclists and passengers were affected by fatigue. As with other subjective measures care, must be taken with a time series of fatigue data. It is possible that the subjective assessment of fatigue by reporting officers has changed over the years.

## Drivers involved in fatal crashes



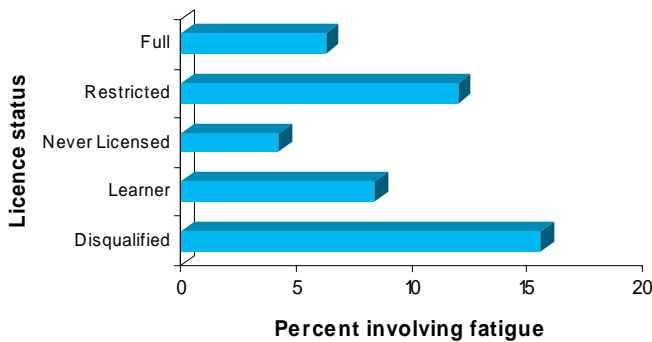
From 2004 to 2006, fatigue was a contributing factor for 9 percent of car and van drivers and 1 percent of motorcyclists in fatal crashes. Approximately 5 percent of truck drivers involved in fatal crashes were identified as fatigued.

### Drivers in fatal crashes involving fatigue by age group (Annual average 2004-2006)

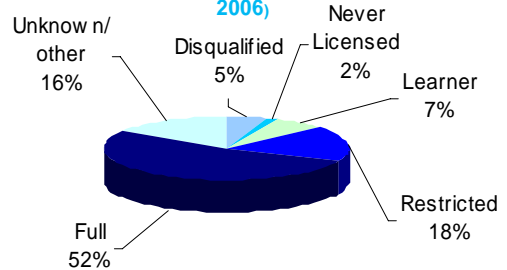


In 2004-2006, fatigue was a factor for 8 percent (108) of all male drivers involved in fatal crashes. Furthermore, fatigue was a factor for 6 percent (22) of all female drivers involved in fatal crashes. Drivers aged 20-24 appear to have the highest frequency of fatigue related fatal accidents.

### Percentage of drivers in fatal crashes involving fatigue by licence status (2004-2006)



### Licence status of drivers in fatal crashes involving fatigue (2004-2006)

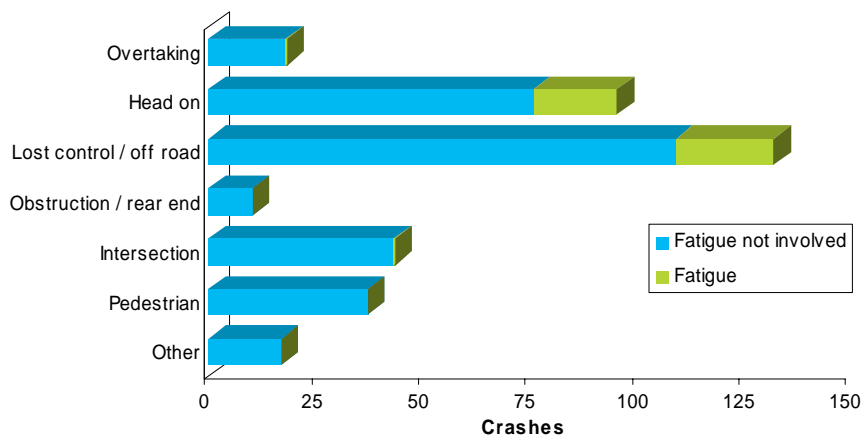


Note: Unknown/ other includes drivers with an expired, unknown or wrong licence class.

Disqualified drivers are much more likely to be in fatal crashes involving fatigue (16%) compared with drivers with a full licence (6%). Drivers with restricted (11%) or learner licences (8%) are also more likely to be in fatigue involved fatal crashes compared with those with full licences.

## Types of crashes

### Types of fatal crashes where driver fatigue was a factor (Annual average 2004-2006)

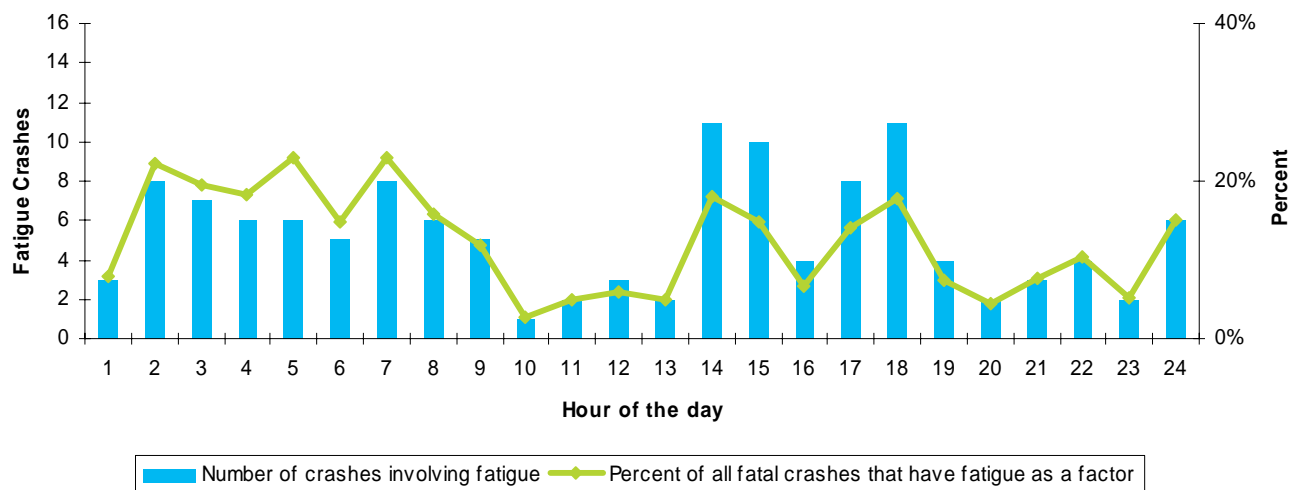


'Loss of control' and 'head on crashes' are the most common types of fatal crashes involving fatigue. Approximately 99 percent of the fatal crashes where driver fatigue was a contributing factor fall into these categories.

## When do crashes involving fatigue occur?

Between 3 am and 5 am our body clocks (circadian rhythms) programme us to feel very sleepy. There is also a secondary peak in sleepiness between 3 pm and 5pm in the afternoon. This is the time of the day when physical and mental performance is at its worst and there is a corresponding increase in fatigue-related crashes at these times. As shown in the graph below there are further peaks when people are typically driving, i.e. 7am, 2-3pm and 5-6 pm.

Fatal crashes with drivers fatigue as a factor by time of day  
(Average 2004-2006)



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](mailto:info@transport.govt.nz). For more information about road safety, visit the Ministry of Transport website at [www.transport.govt.nz](http://www.transport.govt.nz).

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