Ministry of Transport
TE MANATŪ WAKA

Fatigue

CRASH STATISTICS FOR THE YEAR ENDED 31 DEC 2008

Prepared by Transport Monitoring, Ministry of Transport

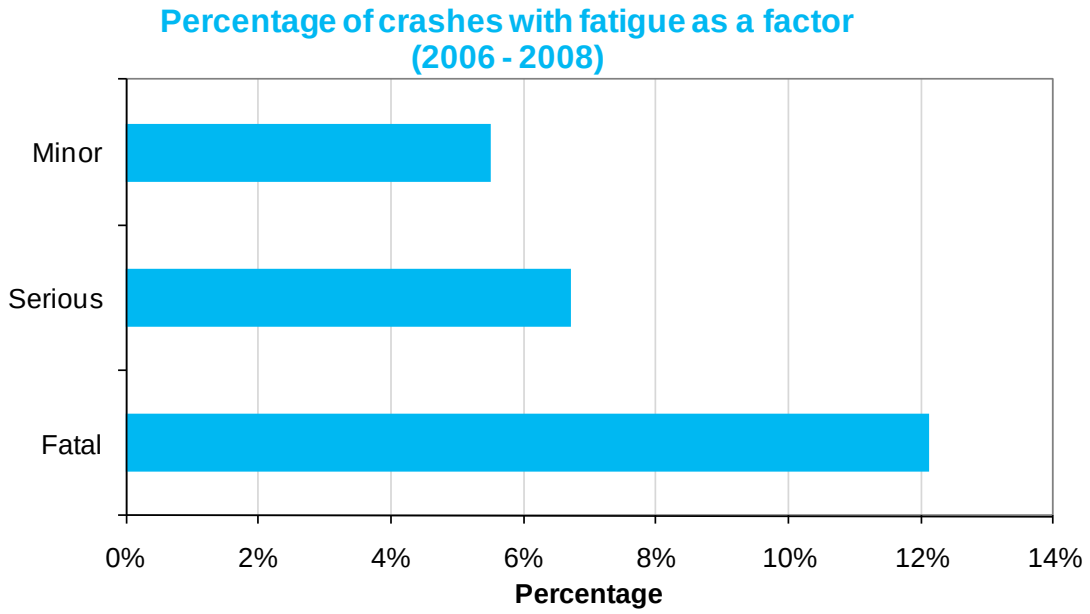
CRASH FACTSHEET

2009

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[1]:

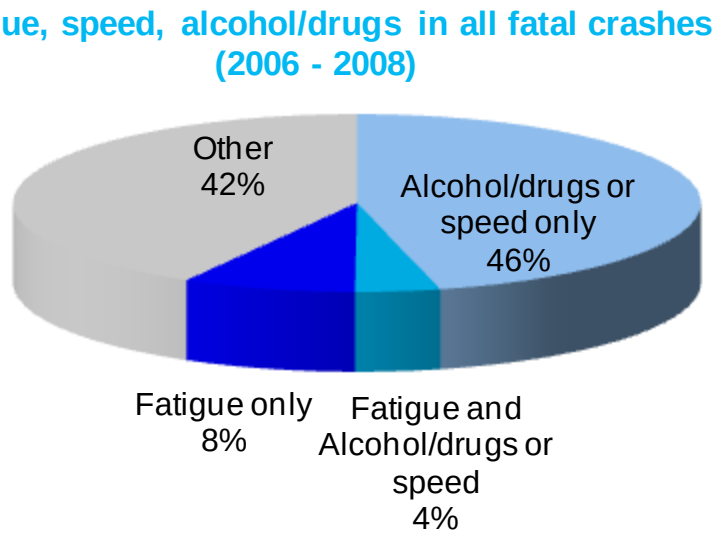
- *Sleep loss* – this is the most commonly-known cause of fatigue. Different individuals require different levels of sleep, although the average is 7 to 8 hours of sleep a day. If you do not get a full night's sleep, it is likely to cause fatigue and this can build up over time if your sleep continues to be restricted.
- *Circadian rhythms* – everybody has a built-in body clock in the brain that biologically determines when they will feel sleepy. These circadian rhythms programme us to feel at our most sleepy between 3 am and 5 am, and between 3 pm and 5 pm.
- *Time spent driving/working etc.* – research shows that the longer people spend driving without a break, the greater their level of fatigue. Also, the time spent in other activities, such as work, school, etc. can increase fatigue and affect subsequent driving.

In 2008 fatigue was identified as a contributing factor in 40 fatal crashes, 142 serious injury crashes and 480 minor injury crashes. These crashes resulted in 52 deaths, 192 serious injuries and 681 minor injuries. The total social cost of crashes involving driver fatigue was about $316 million; this is about nine percent of the social cost associated with all injury crashes. However, fatigue is difficult to identify and recognise as having a role in a crash. Research suggests that the contribution of fatigue to crashes may be under-represented in the police-reported crash system that has been used for this factsheet, so fatigue may be a factor in more crashes than are reported here.



As crash severity increases, so does the involvement of driver fatigue. In New Zealand, over the years 2006 to 2008, driver fatigue was a factor in 12 percent of fatal crashes, seven percent of serious injury crashes and five percent of minor injury crashes.
In about a third of the 12% of fatal crashes that involved driver fatigue, alcohol/drugs or speed were also contributing factors.

[1] For additional information on the causes of fatigue and how to prevent them see the Land Transport New Zealand Fatigue Factsheet here http://www.nzta.govt.nz/resources/factsheets/24/index.html



Fatigue in combination with factors, such as speed and/or alcohol/drugs, increases the risk of a crash. The faster people drive, 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. Out of 128 fatigue-related fatal crashes for the three-year period 2006 to 2008, approximately 29 percent also had alcohol/drugs as a contributing factor, and approximately seven percent also had speed as a contributing factor.

Between 2006 and 2008, 88 percent of the 128 fatal crashes that involved fatigue as a contributing factor occurred on the open road. The remaining twelve percent occurred in urban areas.

Who dies?

For every 100 drivers or riders killed in road crashes in which fatigue is a contributing factor, 34 of their passengers and 19 other road users die with them.

	Deaths in crashes where driver fatigue was a contributing factor (2006-2008)			
Age	**Fatigue-involved drivers**	**Passengers with fatigue-involved drivers**	**Other road users**	**Percentage of all deaths**
0-14	0	5	1	8%
15-19	3	4	0	4%
20-24	12	5	0	10%
25-29	10	3	0	16%
30-39	20	2	2	14%
40-49	15	2	7	16%
50-59	14	2	5	20%
60+	17	6	2	11%
Unknown	0	2	0	13%
Total	91	31	17	12%

Time series

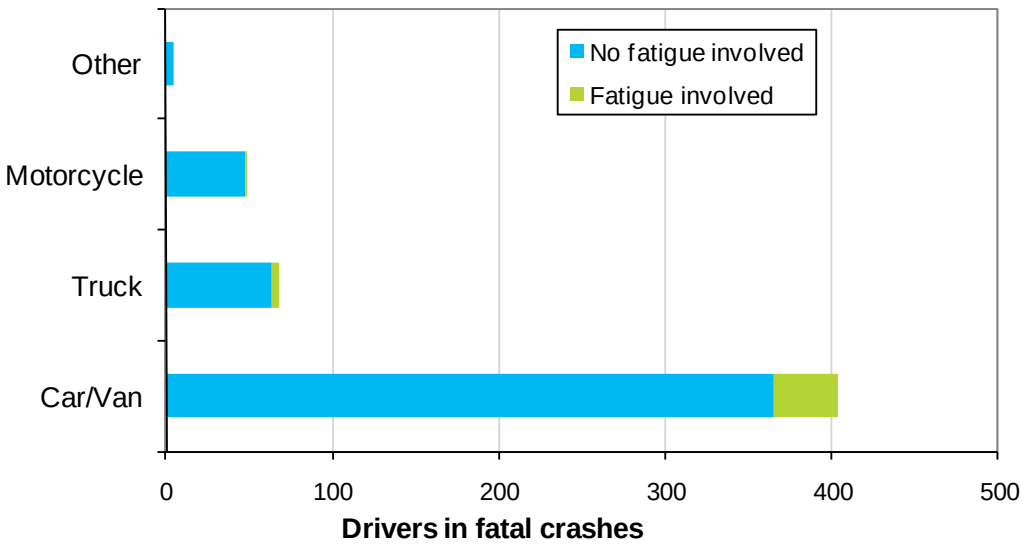
Crashes and casualties with driver fatigue as a contributing factor

	Crashes with driver fatigue as a factor				Casualties from crashes with driver fatigue as a factor			
	Fatal		Injury		Deaths		Injuries	
Year	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	40	12%	610	6%	50	12%	888	6%
2006	39	11%	632	6%	42	11%	901	6%
2007	48	13%	684	6%	54	13%	986	6%
2008	40	12%	622	6%	42	12%	873	6%

Note: The table shows crashes and all casualties from police-reported crashes in which at least one driver was affected by fatigue. Not included are the crashes in which only the pedestrians, cyclists or 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.

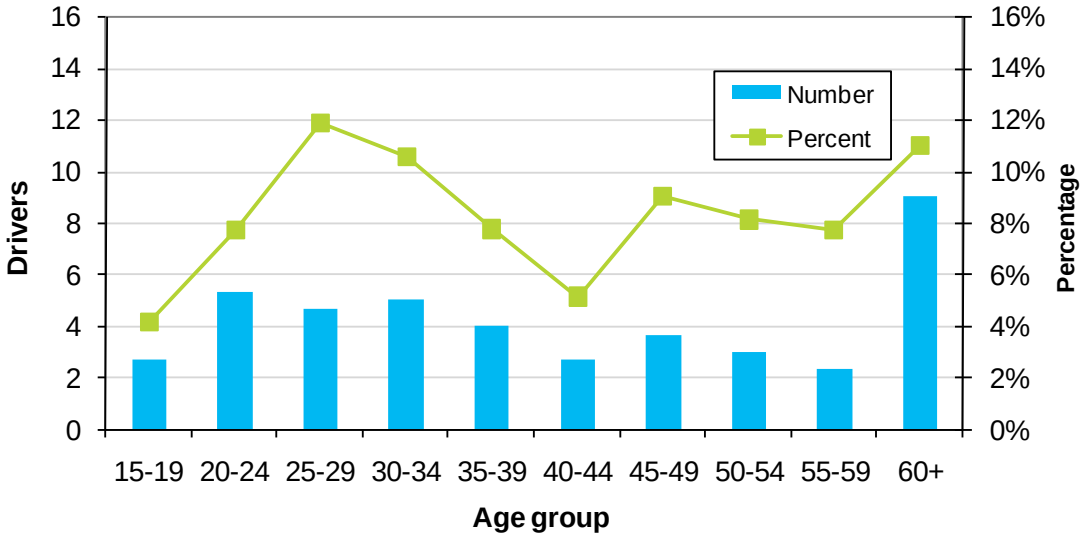
Drivers involved in fatal crashes

Drivers involved in fatal crashes by vehicle type
(annual average 2006 - 2008)



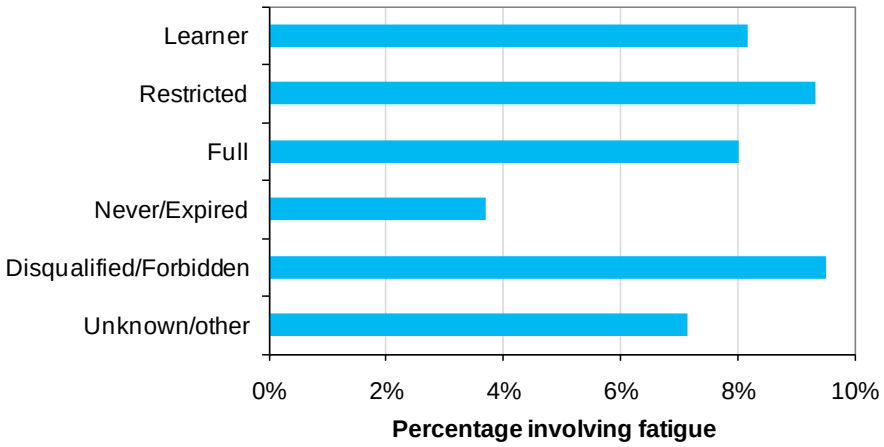
From 2006 to 2008, fatigue was a contributing factor for nine percent of car and van drivers involved in fatal crashes. Approximately six percent of truck drivers involved in fatal crashes and one percent of motorcyclists involved in fatal crashes were identified as fatigued.

Drivers in fatal crashes involving fatigue by age group (annual average 2006 - 2008)



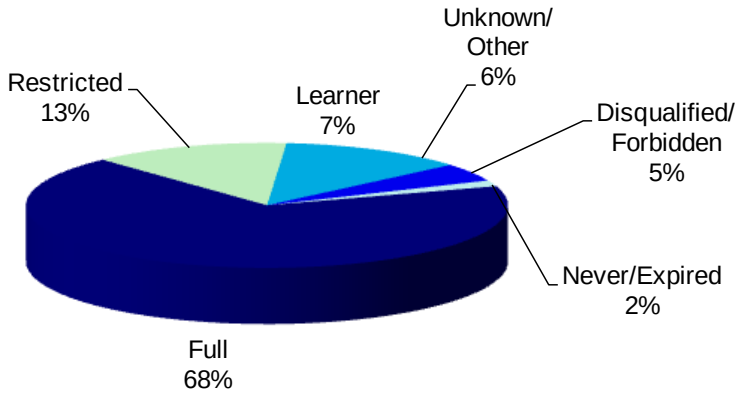
In 2006-2008, fatigue was a factor for eight percent of all male drivers involved in fatal crashes (98), and for eight percent of all female drivers involved in fatal crashes (30). Driving while fatigued is not limited to any one age group.

Percentage of drivers in fatal crashes involving fatigue by licence status (2006 - 2008)



Disqualified drivers are much more likely to be in fatal crashes involving fatigue (9.5%) when compared with drivers with a full licence (8%). Drivers with restricted (9.3%) or learner licences (8.2%) are also more likely to be in fatigue-involved fatal crashes when compared with those with full licences.

Licence status of drivers in fatal crashes involving fatigue (2006 - 2008)

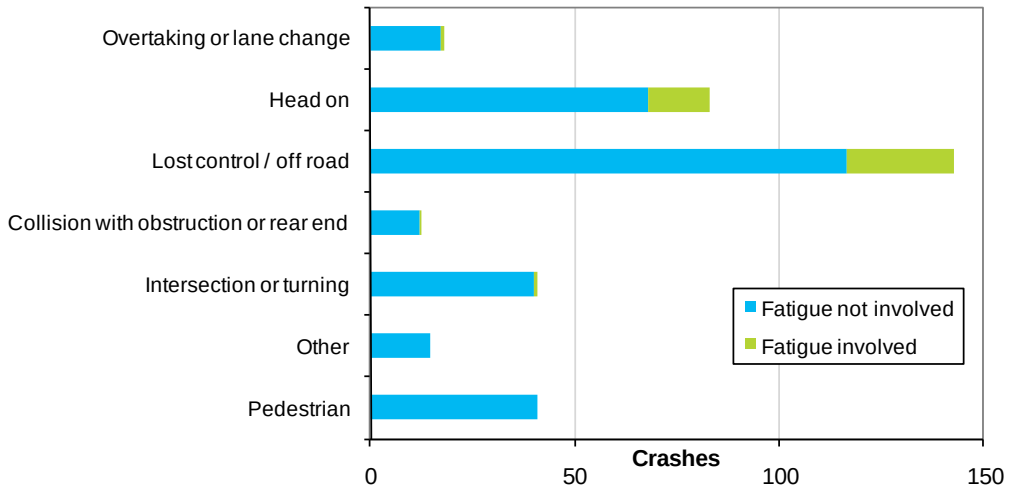


However, most (68%) fatigued drivers in fatal crashes have a full licence.

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

Types of crash

Types of fatal crashes where driver fatigue was a factor (annual average 2006 - 2008)

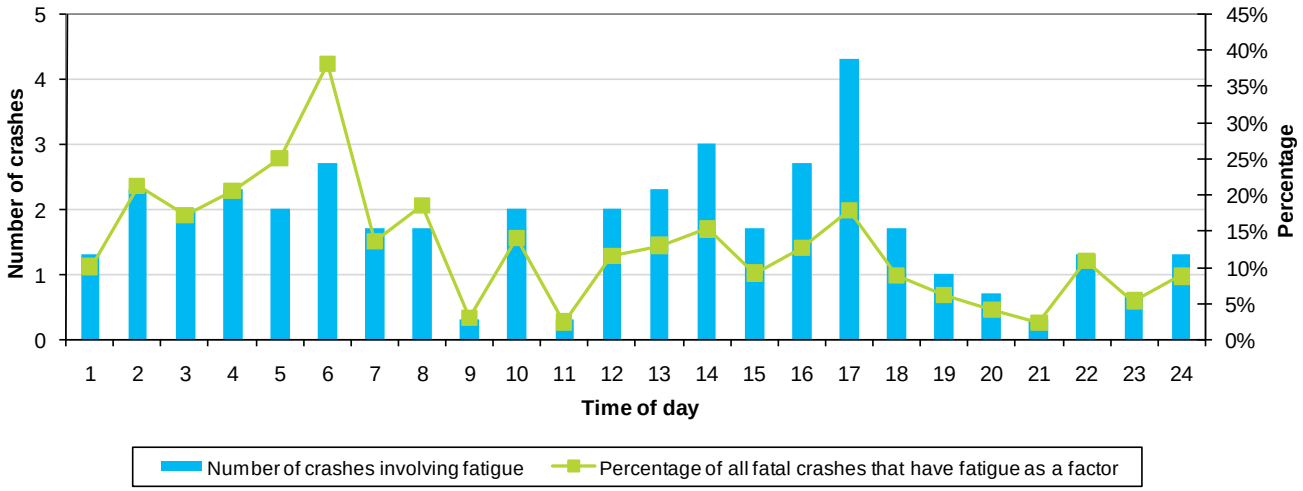


'Loss of control' and 'head-on' crashes are the most common types of fatal crash involving fatigue. Approximately 96 percent of the fatal crashes in which driver fatigue was a contributing factor fall into these categories.

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.

Fatal crashes with driver fatigue as a factor by time of day (annual average 2006 - 2008)



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.

Enquiries 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.

"Fatigue" was prepared by Transport Monitoring, Ministry of Transport, November 2009.