



## What evidence is there that cycle helmets save lives?

There is no direct evidence that the wearing of cycle helmets has led to fewer deaths amongst cyclists. Most research into cycle helmets has not included cyclist fatalities.

The premise that helmets save lives is by extrapolation from research that has suggested that helmets might reduce injuries to the head. As most fatalities involve head injury (this applies to all major external causes of violent death, not especially cycling), the reasoning is that by reducing injuries to the head, cycle helmets can lead to fewer cyclist deaths.

### Whole population data

Whole population statistics for cycling fatalities do not support the above hypothesis.

Long-term analyses of fatalities in Canada (Burdett, Can), New Zealand (Burdett, NZ) and USA (Kunich, 2002; Rodgers, 1988) show no helmet benefit; indeed, one study (Rodgers, 1988) suggests helmeted cyclists are more likely to be killed. Although fatality rates have generally declined, cyclists have fared no better than pedestrians. In Great Britain, too, there has been no discernible improvement in fatality trends relative to pedestrians as helmets have become more common (BHRF, 1071; Hewson, 2005).

In New South Wales, Australia in the three years following the introduction of its helmet law, 80% of cyclists killed and 80% of those seriously injured wore helmets at the time (Robinson, 1996; NSW, 1994). These proportions are almost identical to wearing rates in street surveys (85% and 83% for adults in 1992 and 1993 respectively; 76% and 74% for children - Robinson, 1996; Smith and Milthorpe, 1993), suggesting that helmets had little effect on the likelihood of fatal or serious injury.

In Western Australia where bicycle helmets have been mandatory for all ages since July 1992, the annual cyclist death toll from 1987 to 1991 (pre-law) averaged 7.6 fatalities per year. From 1993 to 1997 (post-law) it was 6.4 fatalities per year, representing a 16% reduction (Meuleners, Gavin and Cercarelli, 2003; CHC, 1). Government cycling surveys show cycling declined in Western Australia by approximately 30% during the 1990s following mandatory helmet law enforcement (WA, 1). Thus the increase in helmet wearing as a result of the law did not reduce fatalities relative to cycle use and may have led to an increase.

Comparing Australia-wide fatalities in 1988 (before any helmet law) with 1994 (when all states had enforced laws and about 80% helmet wearing), cyclist, pedestrian and all road user deaths fell by 35%, 36% and 38% respectively. Head injury deaths fell by 30%, 38% and 42%. Despite very high helmet use, the reductions for cyclists were less than for the other road users (Curnow, 2005). The differences are much greater still if the considerable fall in cycle use as a result of the helmet laws is taken into account.

NEISS data from the US shows that over the latest 15-year sample period, head injury was a factor in fewer than one half (45%) of bicyclist deaths (BHRF, 1177).

### Local research

Specific research into fatalities in Sheffield, UK (Kennedy, 1996) has shown that even if head injuries were eliminated completely, at least 50% of cyclist deaths would still occur. Most fatalities involve multiple injuries and head injury is not the sole cause of death. The experience of a solicitor specialising in cyclist injuries (BHRF, 1173) supports the view that deaths solely due to head injury are unusual. Furthermore, fatal head injuries typically involve rotational forces, which cycle helmets do not mitigate and may even make more likely (BHRF, 1039).

Cyclist deaths were also investigated in Auckland, New Zealand (Sage, Cairns, Koelmeyer and Smeeton, 1985). 16 of 19 non-helmeted cyclists died from multiple injuries, so helmets would not have changed the outcome. Only one cyclist died of head injuries in a bike-only crash, the most likely situation for a helmet to help. That cyclist died despite wearing a helmet and a fall at moderate speed. The researchers concluded: *"This study indicates that the*



*compulsory wearing of suitable safety helmets by cyclists is unlikely to lead to a great reduction in fatal injuries, despite their enthusiastic advocacy".*

A study of cyclist crashes in Brisbane, Australia concluded that helmets would prevent very few fatalities (Corner, Whitney, O'Rourke and Morgan, 1987). All deaths were caused through collisions between a bicycle and a motor vehicle. For 13 of the 14 cyclists who died, there was no indication that a helmet might have made any difference. The authors were very concerned about brain damage from rotational injuries and recommended developing a new test to measure the sliding impact friction of helmets.

## **Inherent limitations of helmets**

In inner London, 58% of cyclist fatalities were caused by collisions with heavy good vehicles, as were 30% of those in outer London (Gilbert and McCarthy, 1994). The idea that a lightweight polystyrene helmet could be of significant benefit in such circumstances is unrealistic and has to be balanced against the potential for a helmeted head to incur more impacts due to its increased size compared with a bare head.

The tragic case of 4 helmeted cyclists killed by a car travelling at 50 mph serves as an example of the fact that cyclists often die in impacts too severe for a helmet to help (BBC, 2006).

## **Conclusions**

Despite the considerable effort that has been put into research about cycle helmets, there is no real-world evidence that helmets have ever resulted in the net saving of even a single life. However, if helmets were actually effective, then many more pedestrian and motor vehicle occupant lives could be expected to be saved if these groups wore helmets.

## **References**

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### **BHRF, 1039**

[Cycle helmets and rotational injuries..](#)

<http://www.cyclehelmets.org/1039.html>

### **BHRF, 1071**

[Casualty trends in Great Britain..](#)

<http://www.cyclehelmets.org/1071.html>

### **BHRF, 1173**

[A solicitor's experience..](#)

<http://www.cyclehelmets.org/1173.html>

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#### **External Link**

[http://www.cycle-helmets.com/bicycle\\_numbers.html](http://www.cycle-helmets.com/bicycle_numbers.html)

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The Bicycle Helmet Research Foundation (BHRF), an incorporated body with an international membership, exists to undertake, encourage and spread the scientific study of the use of bicycle helmets. Also to consider the effect of the promotion and use of helmets on the perception of cycling in terms of risk and the achievement of wider public health and societal goals.

BHRF strives to provide a resource of best-available factual information to assist the understanding of a complex subject, and one where some of the reasoning may conflict with received opinion. In particular BHRF seeks to provide access to a wider range of information than is commonly made available by those that take a strong helmet promotion stance. It is hoped that this will assist informed judgements about the pros and cons of cycle helmets.

For more information, please visit [www.cyclehelmets.org](http://www.cyclehelmets.org).

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