

# Motorcycle Helmets

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## Motorcycle Helmet Law (2019)

- Only 20/50 (40%) states have adopted a Universal Helmet Law (UHL)
- 28/50 (56%) have Partial Helmet Laws  
Most provide that helmet only required age <18yo or 21yo
- 2/50 (4%) have NO helmet law IA, and IL!



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- According to US DOT, *Head Injury* is the leading cause of death in motorcycle collisions
- According to the independent NTSB, motorcycle-related fatalities in 2017 (5000) outnumbered those associated with aviation, rail, marine, and pipeline combined



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## History

- Prior to 1966 – no state had a helmet law
- The Highway Safety Act of 1966  
Required Sec of Transportation to develop standards for highway safety
  - One of the standards dealt with motorcycle safety and required state to adopt a universal helmet law
  - States that failed to comply would lose a portion of their federal highway construction funds
  - 22 states immediately complied
  - By 1974, 47 states and DC were in compliance

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- Proud Moment Alert  
Illinois was first state to repeal UHL after its initial adoption in 1967  
In 1969 the Illinois Supreme Court declared UHL unconstitutional



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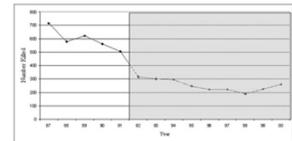
- During the 1970's lawyers argued issues such as infringement of civil liberties
- Many states start to cave to pressure and reduce universal law to useless 'partial' law (helmet only <18 or 21yo)
- In 1975, Congress eliminated penalty to states for non-compliance
- By 1980 only 19 states and the DOC maintained a universal helmet law

- The early 1990's saw a Renaissance
  - With ridership and deaths on increase, several states go back to UHL
  - In 1991, Congress asked GAO to investigate
    - Helmet use reduces fatality rates
    - Helmet use reduces injury severity among survivors
    - UHL's at least double helmet use over states with none or PHL's
    - States with UHL's had at least 20-50% decrease in fatality rates over states with none or PHL's
  - **Because of the 'convincing evidence' that helmets save lives and reduce the 'burden' on society for caring for injured riders the GAO recommended Congress return to penalizing noncompliant states**

- Intermodal Surface Transportation Efficiency Act of 1991
  - o Essentially tied UHL's to vehicle safety belt use laws
    - Compliant states got grants
    - Non-compliant states got federal highway construction money 'redirected' to other highway safety programs
    - Several additional states comply
- In 1995 Congress caves again and repeals the penalty clause, essentially leading to current situation

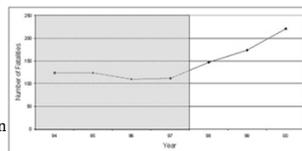
## California

- UHL became law in 1992
- Helmet use increased from 50% in 1991 to 83% in 1992
- Motorcycle fatalities decreased 37% in 1992
- Both severity and number of head injuries decreased



## Texas

- UHL in 1968; repealed in 1977, adopted PHL
- Reenacted UHL in 1989
  - 57% reduction in head-related fatalities
  - 55% reduction in severe head/face injuries
- 1997 – UHL repealed to PHL again (<21yo)
  - 51% increase in fatalities and significant increase in TBI and hospital costs associated with treatment



## Why no helmets?

- Helmets are too heavy
- Helmets are too hot
- No peripheral vision with a helmet
- Can't hear with a helmet
- A helmet will cause a spinal injury in an accident



## BIKERS OF LESSER TOLERANCE

### B.O.L.T.

**Friends of B.O.L.T.**      **Comment at Friends of BOLT**      LIBRARY

#### Helmet Complaints

Complain to the NHTSA about your Motorcycle Helmet

As of October 31, 2007, there are only 20 complaints about motorcycle helmets on file at the NHTSA. Let's get 10 times as many official complaints filed by the end of the year 2007, then get 100 times as many in 2008.

If hundreds of thousands, perhaps millions, of bikers across the country hate their motorcycle helmets, and hate being forced to wear helmets, then there are 300 million potential complaints.

This must be very encouraging to the government and all the safety nazi agencies involved. They are getting the wrong message. "Isn't it lovely how compliant they are! They certainly must love being forced to wear helmets!"

Many more people would complain if they thought the government would listen. Perhaps people do not know that the government must listen to your complaints, and in some cases, they act on your complaints.

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## MOTORCYCLE HELMETS ARE NOT SAFE!

By Steve "Red" Barron

The present testing standard for motorcycle helmets (FMVSS-218) was created almost 30 years ago. The helmet manufacturer's are required to perform all motorcycle helmet testing in a laboratory on a headform. The result is a motorcycle helmet designed to pass the testing standard which is to protect a headform in a laboratory. The testing does not simulate what would happen to a motorcyclist wearing that helmet in the event of an actual accident. The present testing standard does not exceed a simulated impact speed of 13.66 mph, nor does it take into account the stresses that would be transferred to a motorcyclist's neck and spinal cord, the reduced vision and hearing, the effects of a chin strap around the throat, or the effect on the brain when the helmet bounces.

the testing were done at an impact speed of 20 mph, the helmet would have to be at least 6" thick, and weigh 15 to 20 pounds in order to pass testing. The current 4 pound helmet puts a terrible strain on the neck without impacting anything. And upon impact, the bending momentum to the neck will more than double. The neck is the weakest link, and FMVSS-218 does not account for the stresses that would be transferred to the neck at all, nor does it simulate a human body as it's only a headform) There have been many motorcyclist's who have become a quadriplegic due to the effects of wearing a helmet. A female motorcyclist wearing a helmet is twice as likely to die as likely as a male motorcyclist (this is probably due to the smaller, weaker neck of a female).

Another requirement of FMVSS-218 (\$5.4) is that a helmet provides no less than 105 degrees peripheral vision. A drivers license test requires 140 degrees peripheral vision, and a motorcyclist with only 105 degrees peripheral vision is considered to be legally blind. Also, when wearing a helmet, the acute decrease in hearing would prevent a person from receiving a drivers license. Therefore, according to DMV regulations, when wearing a helmet a motorcyclist is legally deaf & blind!

Helmet's are not a safety device for motorcyclist's, and mandatory helmet laws are nothing more than a mandatory

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## Evidence

- NHTSA – 1996
  - Helmet use increases survivability in motorcycle crash 29%, but does it significantly hamper auditory or visual cues for the rider?
  - 50 riders of various skills and ages, riding their own motorcycle
  - Placed on 5 mile 'course' with no helmet, partial helmet, or full coverage helmet
  - Given various tests by trailing vehicle at several different speeds
    - 4 riders (8%) had difficulty recovering lateral vision by turning head a little farther when changing lanes
    - At any given speed the helmets did not enhance or inhibit auditory signals

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Injury Type	Helmets Used	Helmets Not Used
Fatal Injuries (Rate = 112)	48	39
Head Injuries (Rate = 336)	101	261

Legend: ■ Helmets Used, □ Helmets Not Used

Statistical significance: Fatal Injuries (Not Significant), Head Injuries (Significant)

- NHTSA Facts:
  - Motorcycle helmet use:
    - Reduces fatality rate
    - Reduces probability and severity of head injuries
    - Lowers the cost of medical treatment
    - Decreases the length of hospital stay
    - Decreases the need for specialized medical treatment
    - Lowers the probability of long-term disability

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## Dr. Thomas Esposito

- \$120 million in medical care and rehabilitation expenses per year were due directly to non-helmet use.
- Legislation mandating motorcycle helmet use should be considered as a viable alternative to raising taxes. However, nearly \$5 billion was absorbed by the non-riding public in the form of increased taxation, higher insurance cost and lost taxes.
- National Highway Traffic Safety Administration found without mandatory legislation, the helmet user rate dropped from 99 percent to 50 percent and non-helmeted motorcyclists were three times more likely to suffer a traumatic brain injury in a crash than those wearing a helmet.

Read more: [http://www.uci.com/Health\\_News/2012/05/15/Public-push-for-helmet-for-motorcyclists/1PL135011318369/mizzz/Boc55V6K](http://www.uci.com/Health_News/2012/05/15/Public-push-for-helmet-for-motorcyclists/1PL135011318369/mizzz/Boc55V6K)

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## Traffic Safety Facts

Research Note

April 2007

### Summary of Novelty Helmet Performance Testing

DOT HB 910 752

The National Highway Traffic Safety Administration (NHTSA) tested seven popular "novelty" helmets to determine how they compare to properly certified helmets. The novelty helmets all performed significantly worse based on their lack of ability to absorb impact energy during a motorcycle crash. Novelty helmets, in general, had very little, if any, impact absorbing capability. Computer simulations of head impact attenuation tests show a 100 percent probability of brain injuries and/or skull fractures for the persons involved in a crash while wearing a novelty helmet.

Motorcycle fatalities have increased for eight straight years. In 2005, 4,933 motorcycle riders died, which represents a 14 percent increase over 2004, during which 4,308 motorcycle riders died. The 2006 NHTSA survey, a probability-based observational study of motorcycle riders use helmets that do not comply with Federal Motor Vehicle Safety Standard (FMVSS) No. 218, Motorcycle Helmets, The helmet was identified by their lack of coverage and retention.

applied to it, contributing the manufacturer's certification that the helmet conforms to all aspects of the standard. A person may not apply the symbol to the helmet if, in exercising reasonable care, the person has reason to know the verification is false or misleading. Each year, NHTSA conducts a testing and inspection program on randomly selected sets of helmets to identify those that do not meet the requirements of the standard, and which may be detained to the manufacturer.

The second option available to consumers is an unclassified novelty helmet. The term novelty helmet, as used in this article, is a term that describes a helmet that is similar in form to a motorcycle helmet designed for on-road use, but is not certified by a manufacturer to meet the minimum safety performance requirements of FMVSS No. 218. In general, these helmets have little or no impact attenuating lining inside their shells, they are not made to withstand the penetration requirements of FMVSS No. 218, and their retention systems do not ensure that the helmets stay belted on motorcycle riders' heads in the event of a crash. A novelty helmet is each identified.

**Figure 1. Cross sections of a representative novelty helmet on the left and a representative certified motorcycle helmet on the right.**

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## Missouri considers law allowing motorcyclists to ride without helmets

Posted: 5:50 AM, Apr 09, 2018 Updated: 6:38 AM, Apr 09, 2018

By Chris Kasper

Senators Bill 556 would give anyone older than 18 that has a full license the choice of wearing a helmet so long as they have insurance to cover \$1 million worth of medical payments.

Motorcyclists pushing for the change say riders from other states avoid Missouri on road trips (like the pilgrimage of sorts in August to Sturgis) because of the current helmet law.

KANSAS CITY, Mo. - The debate on motorcycle helmet law is heating up in Missouri.

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OK, not everyone will live just because they have on a helmet ...

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BUT what we know....

- Unhelmeted passenger riders involved in an accident
  - Higher ISS on admit
  - Lower GCS on admit
  - Greater hypotension on admit
  - Longer hospital stay/more days in ICU
  - Higher rate of disability
  - Higher mortality rate
  - Higher hospital costs
- Independent predictors of unhelmeted motorcyclists
  - Alcohol intoxication
  - Riding as a passenger
  - Lack of health insurance

(Brown, et al., J of Emergency Medicine, 2011)

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This image is seconds after the accident. All bikes are in their actual final resting places from their collisions.

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What can we do??

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