

Debunking Common Claims Against Motorcycle Helmets and All-Rider Helmet Laws

The truth about what you may have heard
(www.smarter-usa.org, info@smarter-usa.org, March, 2016)

Anti-helmet law advocates who want to repeal all-rider helmet law so that they can have the freedom to feel the wind in their hair have been known to “bend the truth” about helmets. In order to convince decision makers to repeal a lifesaving, injury reducing and cost preventing law, they haven’t been entirely truthful about the facts. Some of what you may have heard is technically true but misleading, some is mere speculation with no basis in fact, and much is outright fabrication completely contrary to the findings of proven, quality research. Here are the FACTS.

You may have heard: *Helmets cause neck or spinal-cord injuries.*

FACT: This is not true. Helmets save lives and prevent injuries. This myth began with the publication of the 1986 Goldstein¹ study and has been perpetuated by anti-helmet law advocates for decades, despite the scientific community’s rejection of the Goldstein methods and results and multiple studies showing helmets do not contribute to neck injuries. A 2011 research study conducted by researchers from John Hopkins University School of Medicine concluded that “motorcycle riders are significantly less likely to suffer from a cervical spine injury when wearing a helmet compared with nonhelmeted riders.”² An author of the study, when describing the work, stated “We are debunking a popular myth that wearing a helmet while riding a motorcycle can be detrimental during a motorcycle crash... Using this new evidence, legislators should revisit the need for mandatory helmet laws. **There is no doubt that helmets save lives and reduce head injury. And now we know they are also associated with a decreased risk of cervical spine injury.**”³ A 2016 study⁴ replicated Goldstein’s model to understand how he obtained his unexpected results and found Goldstein’s analysis to be critically flawed. The authors note that considerable damage has been done by Goldstein’s incorrect analysis and spurious findings and go so far as to recommend the publisher retract his paper. This study in part concludes “**any reasonable analysis of these data would have concluded that helmet use was strongly protective against fatal injury, strongly protective against head injury, and weakly to moderately protective against neck injury.**”

You may have heard: *Published studies show that helmets do not help prevent fatalities and contribute to injuries.*

FACT: This statement is very deceptive. Again, helmets save lives and prevent injuries. This is another misrepresentation by the refuted Goldstein study; highly criticized by the scientific community due to methodological weaknesses.¹ Another review of Goldstein (by Bedi, 1987) concludes the Goldstein results “cannot be relied upon for policy formulation, particularly the repeal of mandatory helmet legislation. Evidence from other studies provides no conclusive evidence of the trade-off between head and neck injuries for a motorcyclist wearing a helmet. **The review of other studies indicates that helmets protect motorcycle riders from both head and neck injuries and that the risk of being killed is much higher for helmetless riders.**”⁵

You may have heard: *The research on helmet and helmet law effectiveness is weak and not conclusive.*

FACT: This absolutely and overwhelmingly not true. There is absolutely no question within the scientific community about the benefits of wearing a motorcycle helmet. Studies conducted all over the world going back to the mid-1940's have consistently validated the injury-reducing benefits of helmets. This body of **research overwhelmingly and indisputably proves helmets do the job they are designed to do and when an all-rider helmet law is in effect, more riders wear a helmet.** The Centers for Disease Control and Prevention (CDC) provide a comprehensive list of motorcycle helmet and helmet law effectiveness studies at: <http://www.cdc.gov/motorvehiclesafety/calculator/factsheet/mchelmet.html>. In addition, a detailed reference list and a summary of rigorous reviews of the literature are available at www.smarter-usa.org.^{6,7}

You may have heard: *Helmets are designed to pass laboratory tests and are tested at only 13 MPH.*

FACT: This is highly deceptive. The test criteria themselves stem from more than 50 years of crash investigation and head injury research, and the 13 mph value is indeed the impact speed at which helmets are tested, according to the DOT standard. However, this value wasn't chosen as being the "upper speed limit" of protection. It is the physical result of the chosen six-foot drop height. The six-foot height stems from the 90th percentile (i.e., 90% likely) accident type identified by the Hurt Report⁸ of 1981, and verified numerous times since. In 90% or more of real-life motorcycle accidents, the rider suffers a blow to the head by falling off his bike from approximately a six-foot riding height, thus hitting the ground at approximately 13 mph. This impact speed holds true regardless of the cruising speed of the motorcycle. Given, the research, it's ridiculous to claim that just because helmets are tested in a laboratory, they have no real-life application. A detailed examination of the standards is available at: <http://www.smarter-usa.org/documents/helmet-13mph-myth.pdf>

You may have heard: *Helmets reduce peripheral vision and prevent the rider from hearing significant traffic noise.*

FACT: This is not true. Normal peripheral vision is approximately 180 degrees. Federal safety standards require that helmets provide 210 degrees of vision. Over 90 percent of crashes happen within a range of 160 degrees (with the majority of the remainder occurring from directly behind), so **it is clear that helmets do not hinder peripheral vision or contribute to crashes.**⁸ Regarding helmets preventing the rider from hearing significant traffic noise, the University of Southern California conducted 900 on-scene, in-depth investigations of motorcycle-crash scenes and could not uncover a single case in which a rider could not detect a critical traffic sound (the "Hurt Study").⁸ Helmets reduce the loudness of noises, but do not affect the rider's ability to distinguish between sounds.

You may have heard: *Riders take more risks when they wear a helmet.*

Fact: There is no evidence to support this claim. In fact, the opposite is more likely true. The

available research indicates riders who choose to ride without a helmet are also more likely to be alcohol impaired and to ride without a proper license.^{9, 10}

You may have heard: *Repealing the helmet law will increase tourist dollars - more riders will visit our state*

FACT: There simply is no evidence to support this claim. The available research indicates repeal of a helmet law has no impact on the number of out-of-state riders. A key result of a November 2014, analysis by the University of Michigan Transportation Research Institute found “Before and after the modification, the percentage of out-of-state riders who were involved in Michigan crashes has remained stable at 5%. This is one way of estimating whether there has been any change in out-of-state ridership after the modification” of Michigan’s all-rider motorcycle helmet law.¹⁰

You may have heard: *Helmets don’t prevent crashes. The best way to prevent injuries and deaths is to put more money into rider training and motorist awareness programs.*

Fact: The first statement is irrelevant and deceptive. The second statement is NOT supported by the available research. Saying that helmets do not prevent crashes is designed to divert decision makers from the fact that helmets are effective in preventing or reducing injuries in the event of a crash. Helmet law supporters do not claim that helmets prevent crashes. Motorcyclist safety programs must address efforts to prevent crashes AS WELL AS prevent or reduce injuries in the likelihood of a crash. All-rider helmet laws are the only countermeasure receiving a “5 star” rating by the National Transportation Safety Administration as having been “demonstrated to be effective by several high-quality evaluations with consistent results” for a countermeasure that actually works.¹¹

While motorist awareness and rider training are considered by almost all motorcyclist safety advocates as important components of comprehensive motorcyclist safety program there is “little or no high-quality evaluation evidence” regarding effectiveness of motorist awareness programs¹¹ and reviews of the literature find conflicting evidence with regard to the effectiveness of motorcycle rider training in reducing crashes or offenses.¹²

You may have heard: *Age-specific laws or helmet laws covering only some riders are effective.*

FACT: This is not true. Statistics tell us that the helmet-use rate in states with age-specific laws or laws that require only some riders to wear helmets is about the same as having no helmet law at all. These laws only complicate the law-enforcement community's job, not make it easier. The result is that any person who chooses not to wear a helmet can do so without meeting the requirements of the law. A 2010 research study of this question found “partial helmet laws neither significantly reduce fatality rates nor increase helmet compliance rates among young riders. A partial helmet law is roughly equivalent to none at all; only universal helmet laws have been shown to effectively protect young motorcyclists.”¹³

You may have heard: *It only affects me. If I die in a crash it won’t hurt anyone else.*

FACT: This statement is certainly not true, and simply not logical. A debilitating injury or death,

because someone decided not to wear a helmet, affects families, friends, co-workers, businesses and communities. The helmet issue is NOT a simple “it only affects me” issue. It is part of a much more complicated citizen safety effort, to prevent the physical, emotional and financial costs resulting from the privilege of riding on public roadways, and our best effort must include a mandatory helmet law covering all riders. Annually, motorcycle crashes cost \$12.9 billion in economic impacts, and \$66 billion in societal harm as measured by comprehensive costs based on 2010 data. Compared to other motor vehicle crashes, these costs are disproportionately caused by fatalities and serious injuries. Motorcycle helmets are currently preventing \$17 billion in societal harm annually, but another \$8 billion in harm could be prevented if all motorcyclists wore helmets.¹⁴

You may have heard: *It's the American Way; I have a right to go without a helmet.*

FACT: Use of public roadways is a privilege, rather than a right. As one expert writing on the subject put it, “... *the first ten Amendments to the Constitution, does not give individuals the ‘right’ to do as they please. Rather the state has a positive role in assuring that all citizens will have equal protection and justice under law and equal opportunities to exercise the privileges of citizenship. The privileges of citizenship come with a price, whether paying taxes or buckling up, but is often viewed by some as unfair.... Wearing a motorcycle helmet while riding, like driving a car with a seat belt on, is a cost to have the privileges, not an individual right to do as one pleases at the consequence of the other citizens.*”¹⁵ (Emphasis added.)

REFERENCES

- 1) Goldstein JP. *The effect of motorcycle helmet use on the probability of fatality and the severity of head and neck injuries: A latent variable framework. Evaluation Review* 1986;10(3): 355–75
- 2) Crompton JG, et.al. *Motorcycle helmets associated with lower risk of cervical spine injury: Debunking the myth. Journal American College of Surgeons*, 2011.
- 3) Walter L. *Researchers Debunk Myth that Motorcycle Helmets Can Increase Injury Risk in Crashes. EHS Today*, February 9, 2011.
- 4) Rice, T. M. et al., *Accident Analysis and Prevention* 91 (2016) 200–20, *Motorcycle helmet use and the risk of head, neck, and fatal injury: Revisiting the Hurt Study*
- 5) Bedi I. *An evaluation of the methodology and results of JP Goldstein’s study, “The effects of motorcycle helmet use on the probability of fatality and the severity of head and neck injuries.” Evaluation Review* 1987;11(5):670–7.
- 6) Access a list of over 270 references to research regarding helmet and helmet laws at <http://www.smarter-usa.org/education/> (See *Motorcycle Helmet Research*) or request a copy by e-mailing info@smarter-usa.org
- 7) A document summarizing quality literature reviews related to helmet use and helmet-use laws. <http://www.smarter-usa.org/documents/ridingSMART-2014-Sept.Oct..pdf>
- 8) Hurt, HH Jr., Ouellet, JV, Thom, DR. *Motorcycle accident cause factors and identification of countermeasures. Traffic Safety Center, University of Southern California. January 1981.*
- 9) Striker, Rebecca H., Chapman, Alistair J., Titus, Rachel A., Davis, Alan T., Rodrigues, Carlos H. *Repeal of the Michigan helmet law: the evolving clinical impact. The American Journal of Surgery*, 2016.

- 10) Flannagan, Carol A.C., Bowman Patrick J. *Analysis of Motorcycle Crashes in Michigan 2009-2013*, University of Michigan Transportation Research Institute, Report # UMTRI -2014-35
- 11) Goodwin, A., Kirley, B., Sandt, L., Hall, W., Thomas, L., O'Brien, N., & Summerlin, D. (2013, April). *Countermeasures that work: A highway safety countermeasures guide for State Highway Safety Offices*. 7th edition. (Report No. DOT HS 811 727). Washington, DC: National Highway Traffic Safety Administration.
- 12) Kardamanidis, K., Martiniuk, A., Stevenson, M.R., & Thistlethwaite, K. (2010). *Motorcycle rider training for the prevention of road traffic crashes*. *Cochrane Database of Systematic Reviews* 2010, Issue 10. Art. No.: CD005240. DOI: 10.1002/14651858.CD005240.pub2
- 13) Brooks, Erin MD; Naud, Shelly PhD; Shapiro, Steven MD. *Are Youth-Only Motorcycle Helmet Laws Better Than None at All? American Journal of Forensic Medicine & Pathology*: June 2010 - Volume 31 - Issue 2 - pp 125-129
- 14) *The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised)*, NHTSA, May 2015 (Revised), DOT HS 812 013, available at <http://www-nrd.nhtsa.dot.gov/Pubs/812013.pdf>.
- 15) Hick, George. *Michigan Helmet Law, Reference Points*, *The Journal of the Michigan Association of Traffic Accident Investigators*, July, 2005.

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