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## Motorcycle Helmets Reduce Spine Injuries After Collisions; Helmet Weight as Risk to Neck Called a 'Myth'

*Motorcycle helmets, long known to dramatically reduce the number of brain injuries and deaths from crashes, appear to also be associated with a lower risk of cervical spine injury, new research from Johns Hopkins suggests.*

"We are debunking a popular myth that wearing a helmet while riding a motorcycle can be detrimental during a motorcycle crash," says study leader Adil H. Haider, M.D., M.P.H., an Assistant Professor of Surgery at the Johns Hopkins University School of Medicine. "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."

For more than two decades, the researchers say, activists lobbying against universal helmet laws have cited a small study suggesting that, in the event of a crash, the weight of a helmet could cause significant torque on the neck that would be devastating to the spine. But results of the new study, published online in the *Journal of the American College of Surgeons*, shows that helmeted riders were 22 percent less likely to suffer cervical spine injury than those without helmets. The study reviewed and mined the National Trauma Databank, looking through information on more than 40,000 motorcycle collisions between 2002 and 2006.

Even with what researchers say are mountains of evidence that helmets reduce mortality and traumatic brain injury after a collision, many states, including Florida, Pennsylvania and Texas, have over the past 15 years repealed their mandatory helmet use laws after lobbying from motorcycle riders, Haider says. Anti-helmet lobbyists often cite a 25-year-old study which found more spine injuries in helmet wearers. That study, has been criticized by many, including the National Highway Traffic Safety Administration, because of flawed statistical reasoning.

"Additionally, helmet technology has significantly improved since that time -- now helmets are much lighter but even sturdier and more protective" Haider says.

Forty years ago, Haider says, nearly all states required helmets for motorcyclists of any age in the United States. Today, helmets are mandatory for all riders in only 20 states, Puerto Rico and the District of Columbia.

Motorcycle use has risen sharply over the past 10 years in the United States. Since 1997, motorcycle injuries in the U.S. have increased by roughly 5,000 per year and motorcycle fatalities have nearly doubled, according to the new journal article.

Haider's study, like many others before, found a reduction in risk of traumatic brain injury in helmet wearers (65 percent) and decreased odds of death (37 percent). But the new paper, Haider says, is the strongest evidence yet that helmets significantly reduce cervical spine injury, which can result in paralysis.

Other Johns Hopkins researchers who contributed to this study include Curt Bone; Keshia M. Pollack, Ph.D., M.P.H.; Cassandra Villegas, M.P.H.; Kent Stevens, M.D., M.P.H.; David T. Efron, M.D.; and Elliott R. Haut, M.D.

**Source:** Joseph G. Crompton, Curt Bone, Tolulope Oyetunji, Keshia M. Pollack, Oluwaseyi Bolorunduro, Cassandra Villegas, Kent Stevens, Edward E. Cornwell III, David T. Efron, Elliott R. Haut. Motorcycle Helmets Associated with Lower Risk of Cervical Spine Injury: Debunking the Myth. *Journal of the American College of Surgeons*, 2011; DOI: 10.1016/j.jamcollsurg.2010.09.032