

# Helmeted bicycle riders have significantly reduced severity of injury after an accident

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Credit: Peter Griffin/Public Domain

Helmeted bicycle riders have a 58 percent reduced odds of severe traumatic brain injury after an accident compared to their non-helmeted counterparts, according to researchers from the University of Arizona, Tucson. Their findings were presented today during the 2015 Clinical Congress of the American College of Surgeons.

The researchers performed an analysis using the 2012 National Trauma Data Bank (NTDB) of the American College of Surgeons, analyzing records of 6,267 patients who had a traumatic [brain injury](#) after a bicycle related accident. Among the group of patients, just over 25 percent were wearing helmets.

"We know for a fact that helmets help you prevent head bleeds in case you get into a bicycle-related accident," said Ansab Haider, MD, one of the study coauthors. "But the real question was, if you get into a bicycle-related accident and end up with a head bleed, does helmet use somehow protect you?"

The researchers found that among this group of patients—those who sustained traumatic brain injury after a bicycle related accident—the ones wearing helmets had a 58 percent reduced odds of severe traumatic brain injury and a 59 percent reduced odds of death. Further, the use of helmets reduced by 61 percent the odds of craniotomy (an operation to remove part of the bone from the skull to expose the brain) and [facial fractures](#) by 26 percent.

"If you are severely injured and you were wearing a helmet, you are going to fare better than if you were not," said Bellal Joseph, MD, FACS, lead study author. "When you hone in on that severe group of people who actually developed a brain injury, and then look at how they did, the helmet really made a difference."

The researchers also looked at the impact of [age](#) and gender on bicycle accidents where a [traumatic brain injury](#) occurred.

"We tried to see how the pattern of helmet use varied over different age groups," Dr. Haider said. "The lowest incidence of helmet use was seen in the age group of 10-20 years of age. But as we went up every 10 years, the likelihood of helmet use went up."

Drs. Joseph and Haider said that the trend of helmet use increasing with age continued to rise with each decade of life, until the age of 70, when the rate went back down for the first time. They also found that females are more likely to wear helmets than males.

The researchers also found that in the patients they studied, the likelihood of facial fractures was higher for those who weren't wearing a helmet at the time of the accident. Dr. Haider said that helmet use helped prevent fractures to the upper part of the face, including the area around the eyes, the orbital lobe. However, helmet use wasn't as effective at preventing fractures to the lower part of the face, such as mandibular jaw or nasal fractures.

As a result of their findings, Drs. Haider and Joseph said that the next step is to create injury prevention programs to increase helmet use among bicyclists, to manufacture better helmets, and to develop and enforce stricter laws for helmet use. They said that they already participate in many prevention programs in Tucson, which is a very bike-friendly city.

"That's where future efforts need to focus in on—making helmets that really make a difference," Dr. Joseph said. "Ultimately, the important message is patient care and how we can make our patients safer and more protected. We need to take this data and take it to the next level and move forward with policy and injury prevention, especially for the younger age groups."

Provided by American College of Surgeons

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