

What injuries are associated with motorcycles?

Fatalities are unfortunately a common outcome of motorcycle crashes. Traumatic brain injury (TBI) is one of the leading causes of fatal as well as nonfatal injury from motorcycle crashes.¹ Fractures of legs and arms are also common.²

Why are motorcycle-related injuries a concern to the Army?

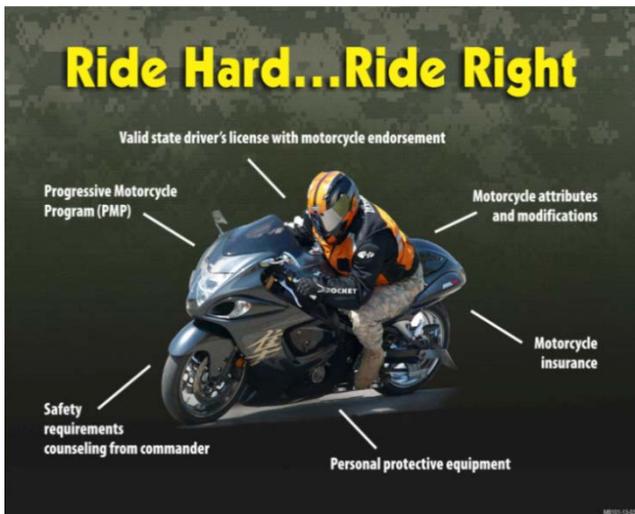
Motorcycle-related fatal and nonfatal injuries have devastating impacts on the U.S. military and the Army. Over 1,000 active duty Service Members were **killed** in motorcycle crashes between 1999 and 2012.³ Over 4,000 active duty Service Members were hospitalized following motorcycle accidents between 1998 and 2008.² In 2011, an estimated 90,000, or 15%, of Army personnel rode a motorcycle.⁴ It has been estimated that for every one Army motorcycle death there are five motorcycle-related hospitalizations and 22 motorcycle-related outpatient visits.⁵ Among Army personnel, hospitalized motorcycle-related injuries resulted in, on average, 13 days of hospitalization, 20 lost-duty days, and 4 days of restricted work.⁶ Costs due to motorcycle-related injuries involving Army personnel averaged \$61,290 per crash between 1999 and 2006.³

What are the risk factors for motorcycle-related injuries?

An estimated two-thirds of motorcycle crashes involve another vehicle while around one third involve only the motorcyclist.^{7,8} Scientific evidence indicates several individual characteristics or behaviors are more frequently associated with these accidents. For example, males and those under 29 years of age are at greatest risk for having a motorcycle accident.^{1,5,9} This demographic represents a substantial proportion of the military population. It is therefore especially important that military personnel try to modify the behaviors that further contribute to a much higher risk.

Common sense may suggest weather-related factors such as rain or slick icy roads increase risk of a motorcycle injury. More importantly, the following individual factors have been statistically associated with a higher risk of motorcycle crash-related injury:^{1,9-11}

- Alcohol consumption
- Not wearing a Department of Transportation (DOT)-compliant helmet
- Excessive speed
- Lacking a valid motorcycle license
- Novice rider
- Not wearing proper protective clothing
- Not wearing high-visibility clothing



Source: Motorcycle 101 – Briefing – downloadable at <https://safety.army.mil/OFF-DUTY/PMV-2/Training.aspx>



Image: U.S. Army Combat Readiness Center

How can you prevent motorcycle-related injuries?

Helmet use is the only scientifically proven prevention measure for motorcycle-related injuries.¹⁰ Other “best practices” are recommended by the U.S. Department of Transportation and the U.S. Army Combat Readiness/Safety Center.

Prevention Tactic	Description
HELMETS: <ul style="list-style-type: none"> DOT- and Army-compliant, worn at all times¹² 	<ul style="list-style-type: none"> Helmet use is proven to prevent motorcycle crash-related injuries. Helmet use is estimated to reduce the risk of fatal injuries by 42% and reduce nonfatal head injuries by 69%.^{10, 13}
PREVENT/REDUCE DRINKING AND DRIVING: <ul style="list-style-type: none"> Especially when operating a motorcycle, don't even have one drink. If you have been drinking, get a ride home or call a taxi. Don't let friends drive impaired – take away their keys. 	<ul style="list-style-type: none"> Army Regulations outline disciplinary actions and requirements for monitoring Soldiers involved in alcohol or drug related incidents, which can include a bar to reenlistment and/or administrative separation. Soldiers should be aware of these consequences and methods to avoid situations where they might drink and drive. There are a number of proven community-based strategies to reduce drunk driving (such as sobriety checkpoints and mass media campaigns).¹⁴ If drunk driving is a concern in your community, consider working with public health and law enforcement organizations to address the problem.
PREVENT EXCESSIVE SPEED	<ul style="list-style-type: none"> Though there are no specific data for examining the effect of speed limits on motorcycle crashes, speed camera networks were found to decrease crashes that injured motorcyclists by 63%.¹
LICENSE AND TRAIN: <ul style="list-style-type: none"> State and local licenses¹² Motorcycle Safety Foundation-based Basic Rider Course¹² 	<ul style="list-style-type: none"> Army unit commanders are responsible for inspecting the motorcycles owned by their personnel to verify rider training, licensing, and protective clothing.¹² While the extent that proper training will reduce the risk of crashes and injuries has still not been adequately studied, the higher incidence of accidents in novice and unlicensed motorcyclists point to the benefits of training and licensing.¹¹
PERSONAL PROTECTIVE EQUIPMENT (PPE): <ul style="list-style-type: none"> Wear clothing suitable for motorcycle riding 	<ul style="list-style-type: none"> In addition to a DOT-compliant helmet, Army motorcyclists and passengers must wear: eye protection that meets American National Standards Institute (ANSI) Z87.1, long pants and long-sleeve shirts, sturdy, over-the-ankle footwear, and full-fingered gloves.¹² Certified motorcycle jackets with padded sleeves, shoulders, and spine are recommended to prevent or reduce the severity of trunk injuries. Padded clothing has been shown to reduce the risk of fractures.² Wearing high-visibility clothing has been found to reduce risk of having a crash.¹

Information Sources:

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<https://safety.army.mil/OFF-DUTY/PMV-2/Training.aspx>