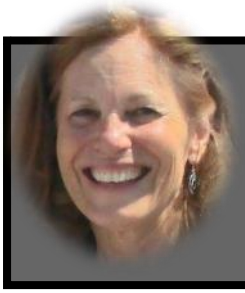


Stats… Be Aware

Sr. Road Captain

Taken from: Motorcycle Safety | NHTSA

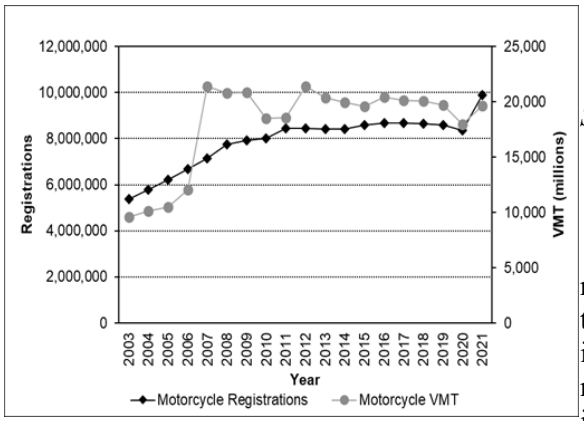
September, 2025

Overview

Riding a motorcycle is among the riskier modes of transportation. Not only does operating a motorcycle require more physical skill and strength than driving a passenger vehicle, but motorcycles lack a protective structure, offering the rider virtually no protection in a crash. Furthermore, the motorcycle's smaller size relative to most motor vehicles may make it less visible to drivers and will also make it more vulnerable in a collision with larger, heavier passenger vehicles and trucks.

Motorcycling increased in popularity in the early 2000s with increases in both motorcycle registrations and VMT during that time. Since 2011, both registrations and VMT have remained relatively consistent (NCSA, 2000; NCSA, 2023).

Annual Motorcycle Registrations and Vehicle Miles Traveled (VMT)

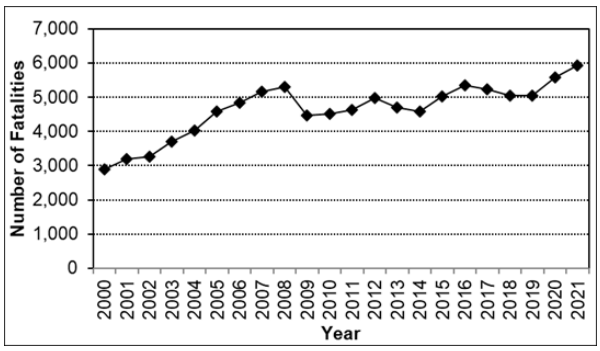


Source: FHWA (2003 to 2023), Table VM-1

Along with this growth in popularity and riding exposure was a rise in the number of crashes and fatalities involving motorcyclists. From 2000 to 2008 the number of motorcyclists killed in crashes increased by 83% and the number injured increased by 66% (NHTSA, 2011). Since 2015 more than 5,000 motorcyclists have been killed in traffic crashes annually (NCSA, 2023). Of increasing concern is the rise in fatal crashes since the COVID-19 pandemic for all road users, including motorcyclists (Office of Behavioral Safety Research, 2021).

Despite accounting for only 3.5% of registered vehicles, motorcyclists comprised 14% of all motor vehicle traffic fatalities in 2021. Additionally, motorcyclists were nearly 24 times more likely to die in traffic crashes per VMT than passenger car occupants (NCSA, 2023). Moreover, in 2021, per 100 million VMT, there were 30.68 motorcyclist fatalities compared to 1.22 passenger car occupant fatalities per 100 million VMT
(NCSA, 2023).

Motorcyclist Fatalities in Crashes



Source: NHTSA (2011), NCSA (2023)

Although motorcycles lack the protective vehicle structure of passenger vehicles, there are actions motorcyclists can take to protect themselves in a crash. Wearing a motorcycle helmet that meets the performance standards of Federal Motor Vehicle Safety Standard 218 (Motorcycle Helmets, 49 CFR Part 571, 2011; "compliant helmet") is one of the most effective ways to reduce the chance of serious injury or death in a crash. In 2021 some 39% of fatally injured motorcyclists were not wearing a helmet (NCSA, 2023). Research indicates that helmets reduce motorcycle rider fatalities by 22% to 42% and brain injuries by 41% to 69% (Coben et al., 2007; Cummings et al., 2006; Deuterman, 2004; NHTSA, 2003; NHTSA, 2006; NHTSA, 2019). A Cochrane Collaboration review of 61 studies concluded that risk reductions were on the high end of these ranges (Liu et al., 2008).

A study of hospital data in the 2013 National Trauma Data Bank compared medical outcomes of helmeted versus unhelmeted motorcyclists involved in a crash. Compared to helmeted motorcyclists, unhelmeted motorcyclists were more likely to be admitted to the Intensive Care Unit (ICU), more likely to need ventilation, and more likely to have clinical indicators of significant/severe injury (Patel et al., 2019). Another study found that riders who were wearing a helmet were less likely to have

a cervical spine injury (Page et al., 2018). Notably, other studies have found no evidence that helmets increase the risk of neck injuries (Brewer et al., 2013; Potts et al., 2008, Strategy E1; NHTSA, 2000; Philip et al., 2013; Ulmer & Preusser, 2003).