

Study finds injuries from e-bike accidents are more serious than in bicycle accidents

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A study at the USZ compared the head injury patterns of e-bike accident victims with those of motorcycle and bicycle accidents. Head injuries after crashes with e-bikes are often more serious than in accidents with bicycles.

The popularity of electric bikes is increasing. Especially among [older people](#), as they gain mobility with motorized support. This is also

reflected in the accident statistics. But is the pattern of serious head injuries (e.g., traumatic brain injuries) in accidents involving electric bicycles more similar to that of cyclists or more similar to that of motorcyclists?

Specialists from the Departments of Traumatology, Neurosurgery, Neuroradiology, and Cranio-Maxillo-Facial and Oral Surgery at the University Hospital Zurich, led by Thomas Rauer, senior physician in the Department of Traumatology, investigated this question in a retrospective study. To do this, they analyzed data from 1,068 patients who were treated at the USZ between 2009 and 2018.

Head injuries as in motorcycle accidents

The pattern of serious head injuries suffered by e-bikers is more similar to that of motorcyclists than cyclists. The study shows that accidents involving e-bikes often result in serious head injuries—even though e-bikes are considered safer than motorcycles due to their lower speed.

With an average age of just under 55 years, the e-bike riders involved in accidents were significantly older than cyclists (42.5 years) and motorcyclists (40.2 years), which can make the effects of [head injuries](#) even more serious. Although the patients who had an accident on an e-bike were wearing a helmet in almost 70% of cases, they showed signs of traumatic brain injury more frequently than cyclists (33.8% with head protection).

The authors of the study explicitly point out the importance of head protection. Riders of electric bicycles are six times more likely to suffer bleeding in the brain in the event of an accident, and the risk of subdural hematomas (bleeding between two meninges) is even thirteen times higher if no helmet is worn. In combination with the older age of e-bike riders and the increased risk of falls, [preventive measures](#) are important.

The research is [published](#) in the *European Journal of Trauma and Emergency Surgery*.

More information: Thomas Rauer et al, Cranio-cervical and traumatic brain injury patterns—do they differ between electric bicycle, bicycle, and motorcycle-induced accidents?, *European Journal of Trauma and Emergency Surgery* (2024). [DOI: 10.1007/s00068-024-02510-1](https://doi.org/10.1007/s00068-024-02510-1)

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