

E-scooter injuries most likely at weekends and after alcohol-fueled risk-taking

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E-scooter injuries are most likely to occur at the weekend and after alcohol-fuelled risk taking, such as kerb jumping, reveals an analysis of the pattern and timing of these injuries in one European city, and

published online in *Emergency Medicine Journal*.

Much stricter regulations on the use of e-scooters, plus technical modifications to their design, are required to lessen the risk of injury, say the researchers.

E-scooters have become popular in major European cities since their initial licensing in June 2019, prompted by their ready availability and [environmental concerns](#).

With 3.8 million residents and almost 14 million tourists every year, Berlin was chosen by [e-scooter](#) manufacturers as a test site for short-distance journeys ('micromobility'). And in September 2019, more than 11,000 e-scooters entered circulation in the city.

Few studies have looked at the patterns of injury associated with e-scooter use in European cities. To plug this knowledge gap, the researchers looked at e-scooter injuries treated at four emergency departments in central Berlin for the six months between June and December 2019.

At two of the emergency departments, [injured patients](#) were asked to fill in questionnaires on the likely cause of the incident, [previous experience](#) with e-scooters, possession of a driving licence, whether they had been drinking before the incident, and whether they had worn a helmet.

During the 6-month study period, 248 patients were treated at the four emergency departments after sustaining an e-scooter injury.

The riders' average age was 29, but ranged from 5 to 81, with the bulk of injuries occurring in those aged between 26 and 40. Just over half the patients were male (52%). Nearly six out of 10 (58%) were resident Berliners; 41% were tourists.

Most incidents (75%) occurred between July and September, peaking between noon and 18:00 hours (40%) and between 18:00 hours and midnight (29%).

E-scooter injuries were also higher at the weekend (58%) than on weekdays. In 20 patients (8%), the incidents happened on the way to or from work.

The primary cause of the injury was falling off the scooter because of loss of control, due to not paying attention, single handed driving, kerb jumping, inexperience, or going too fast.

Injuries were also caused by contact with the sharp edges or protruding screws of the e-scooter during acceleration or when pushing off from the ground or while trying to brake.

Pedestrians were injured in 12 cases (5%), either by getting hit by an e-scooter (9) or by tripping over a parked vehicle (3).

Leg and arm injuries were recorded in 178 patients and made up most of the injuries (72%). Thirteen of the 17 patients with a leg fracture required surgery; but most leg injuries were soft tissue injuries.

Arms were more likely to be fractured than legs (17% vs 6%); 21 of these patients (8%) required surgery. Four people dislocated a shoulder.

Head injuries (135) were sustained by 101 patients: soft tissue injuries (27%); fractures (19%); and tooth damage (17%). One patient had a brain bleed. Thirty two (13%) also had a traumatic brain injury of mild severity, 22 of whom were admitted to hospital.

In total, 1 in 4 patients (61;25%) was admitted to hospital: 57 of them (23%) required surgery, with the average stay lasting 3 days, but ranging

from 1-12 days.

Of the 120 patients who filled in the questionnaire, two thirds (82; 68%) had a driving licence and around half (58; 48%) had driven an e-scooter before.

One in five patients (49; 20%) tested positive on the alcohol breath test; 15 of them had sustained traumatic brain injury (31%).

A positive breath test was associated with a fivefold increase in the odds of traumatic brain injury and a doubling in the odds of hospital admission, even if the drivers were experienced in handling e-scooters.

Previous experience with e-scooters was associated with a threefold increase in the odds of traumatic brain injury. Only 1% of riders wore a helmet.

The researchers acknowledge that their study was confined to four central emergency departments in one city and that patients at only two of the emergency departments filled in the questionnaire.

Nevertheless, the study reports on the largest cohort of patients involved in e-scooter incidents in Europe, they point out.

Their findings prompt the researchers to call for much tighter regulations for e-scooter users. "These should include the wearing of helmets, an age limit of 18 years, a ban on alcohol and a strict adherence to traffic regulations, such as avoiding driving on pavements," they write.

"By performing technical modifications to the e-scooter platforms, providers can help to eliminate an additional source of [injury](#)," they add.

More information: Deniz Uluk et al, E-scooter incidents in Berlin: an evaluation of risk factors and injury patterns, *Emergency Medicine Journal* (2021). [DOI: 10.1136/emmermed-2020-210268](https://doi.org/10.1136/emmermed-2020-210268)

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