

## Fatal cycling accidents in the Czech Republic: factors and causes of death

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### ABSTRACT

We studied in detail the circumstances and causes of death of 129 cyclists which occurred in the Olomouc and the Zlín region, the Czech Republic, between 2005 and 2013. We analysed the autopsy reports where the principal cause of death was stated. We obtained a detailed description of the circumstances recorded by police officers for the same group of cyclists.

79 cases (61 % of all the set) were collisions involving a motor-vehicle. The culprit was the driver in 57 cases and the cyclist in the remaining 22. The most frequent cause of accident was connected with right of way (27 cases). Personal vehicles were involved in 50 cases, heavy vehicles, including buses and tractors, in 24 cases and a motorcycle in 5 cases.

Single-vehicle accidents consisted of 54 cases. We divided this group into 2 subgroups based on whether the particular case could be attributed to a cyclist having lost control of the bicycle or to a less common cause.

We prepared 27 sketches which depict all 129 cases of fatal accidents. A number of situations were unique, but several of them occurred under similar circumstances. We were therefore able to identify several fatal accident patterns.

69 cases (53 %) of the fatal outcomes were directly linked to intracranial injuries. Multiple injuries were the principal cause of death in 18 cases, followed by haemorrhagic traumatic shock (12 cases). 72 (56 %) cyclists died immediately after the accident and 23 (18 %) cyclists died within a day of the accident. The time of death for the cyclist differed significantly based on the principal kind of accident. Cyclists survived a shorter time in cases of a crash as compared with single-vehicle accidents.

**Keywords:** fatal accidents, bicycle motor-vehicle collision, autopsy report.