

PROSPECTIVE STUDY ON MINOR ACCIDENT AND INJURY RISKS PER TRAVELLED DISTANCE FOR CYCLISTS

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Background and aims: Utilitarian cycling reduces risks for adverse health outcomes such as obesity and cardiovascular diseases. Active transport also contributes to better environmental conditions and hence better health for other inhabitants. Unfortunately there are also health risks which are poorly understood. Cycling accidents are the most important health risk to cyclists yet available statistics are very poor. Only a small fraction of accidents is officially registered and reliable data on minor injuries and the distance cycled are not available. This lack of data hampers policy decisions on cycling.

Methods: The SHAPES-project executed a full year prospective cohort study using electronic surveys. 1,187 participants reported their bicycle use for a total of 20,107 weeks (1,474,978 kilometres; 214,644 trips). A Poisson regression was performed to analyse contributing factors. Injured cyclists were also asked to fill out a questionnaire to determine injuries and other indirect costs.

Results: 219 minor accidents were reported (148 per million kilometres). Most accidents occurred on roads (69%), and fewer on bicycle lanes (21%) or bicycle paths (10%). Slipping (36%) and collisions with cars (19%) were the most frequent causes of injuries (mostly abrasions (42%) or bruises (27%) to arms and legs. Fractures and head injuries are rare. The average cost per accident is 841€ (95% CI: 579-1205€) or 0.125€/km cycled. Women (-3.3 km/h) and urban cyclists (-3.1 km/h) cycle slower and shorter distances. Age and gender are significantly related to the accident risk but there is no gender difference for the injury risk. Cycling paths are associated with longer trip distances to work (+38%) and higher speed (+1.5 km/h)

Conclusions : A prospective cohort study including accidents and distance cycled can be used to calculate accident and injury risks. Risks and costs have been accurately quantified and can now be objectively compared to the health benefits of cycling.