

## How to Make Bicycling Safer

### Identification and Prevention of Serious Injuries among Bicyclists

The overall aim of this thesis was to guide current and future safety improvements that address serious injuries among bicyclists. The thesis is compiled by four studies, of which the first two aimed to identify injuries leading to loss of health from a biopsychosocial perspective, and the two following studies aimed to understand how these injuries occur and how they can be prevented.

Study I investigated health-related quality of life (HRQoL), based on the EQ-5D questionnaire, while Study II investigated sickness absence (SA), following a bicycle crash. On a general level, the injuries associated with problems in HRQoL and long-term SA included mainly fractures of the hip and upper leg, fractures of the lower leg and ankle, fractures of the upper arm, fractures and sprains of the shoulder, traumatic brain injuries, and fractures and strains to the spine.

Study III found that the majority (68%) of such injuries occurred in single bicycle crashes, and further 17% in collisions with motor vehicles. In Study IV it was shown that the current Swedish safety performance indicators related to cycling could address up to 22% of crashes involving injuries associated with problems in HRQoL and long-term SA.

In addition to the current safety performance indicators, the following five actions should be the focus of more rapid implementation: autonomous emergency braking with cyclist detection on passenger cars, extended maintenance to include all urban roads used for cycling, improved design of curbstones, and to separate cyclists from both motor vehicles and pedestrians. Overall, this thesis highlights that additional interventions targeting single bicycle crashes need to be prioritised by road authorities in order to prevent health loss among bicyclists.



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