



Research report no. 2018-T-05-SEN

Cyclists

Thematic File Road Safety No. 2

(2nd edition, 2018)



Cyclists

Thematic File Road Safety No. 2

(2nd edition, 2018)

Research report no. 2018-T-05-SEN

Authors: Ricardo Nieuwkamp & Annelies Schoeters

Responsible publisher: Karin Genoe

Publisher: Vias institute - Knowledge Centre Road Safety – Knowledge Centre Road Safety

Date of publication: 21/09/2017

Legal deposit: D/2018/0779/28

Please refer to this document as follows: Nieuwkamp, R. & Schoeters, A. (2018) Thematic File Road Safety No. 2 – Cyclist. Brussels, Belgium: Vias institute - Knowledge Centre Road Safety – Knowledge Centre Road Safety

The complete report is available in Dutch and French:

- Nieuwkamp, R. & Schoeters, A. (2018). *Dossier thématique Sécurité routière n° 2. Cyclistes*. Bruxelles, Belgique : Institut Vias – Centre Connaissance de Sécurité Routière.
- Nieuwkamp, R. & Schoeters, A. (2018). *Themadossier Verkeersveiligheid nr. 2. Fietsers*. Brussel, België: Vias institute – Kenniscentrum Verkeersveiligheid

This research was made possible by the financial support of the Federal Public Service Mobility and Transport.

Summary

Bicycle use has increased over the recent years. The bicycle was one of the three most important means of transport in 2015 for about one third of the Belgians. Although the sale of the classic bicycle has stagnated in recent years, the sales of the electric bicycle continues to increase. For example, the electric bicycle is already one of the three main relocation means for 4% of Belgians in 2017, which is higher than the European average (2%). The use of the electric bicycle increases in all age groups: from 10% to 14% for the elderly (55+) and from 4% to 8% among the youth.

When evaluating the road safety of bicycles, one should take into account the large degree of underregistration of bicycle crashes in comparison with accidents with motorized road users. International research shows that often only about 10% of bicycle crashes are reported to the police. Whether or not to report a bicycle accident depends on, among other things, the type of accident (when the opponent drives a motor vehicle, the accident is most frequently reported in comparison to single accidents) and the seriousness of the injuries (the more severe the injuries, the more likely it becomes that the accident will be reported).

In 2016, the official accident statistics in the 28 member states of the European Union reported about 2.050 cyclists who were killed as a result of a traffic accident. In total, the cyclists accounted for 8% of the total number of fatalities in the European Union. The number of deceased cyclists in the European Union between 2006 and 2015 decreased less rapidly (-27%) than the total number of fatalities (-40%). Especially men (78%) and the elderly (65+) (42%) are common among bicycle deaths. More than half (52%) of bicycle deaths in Europe resulted from a collision with a car. Bicycle fatalities under the age of 20 mainly occur in accidents with other motor vehicles.

In Belgium, it appears that the number of bicycle crashes has stagnated in the last 10 years, while the number of injury crashes among motorized road users continues to decline. The number of cyclists who were killed in a traffic accident experienced a favourable evolution over the past 26 years: the number halved. However, this decrease is less pronounced than that of the total number of fatalities, which indicates that the share of cyclists in the total number of deaths has increased. Belgian hospital data confirm that there is a large degree of underregistration of seriously injured cyclists in the official police database: although cyclists make up only 16% of the seriously injured road users in the police database, they make up the vast majority of the hospitalized traffic victims. The most common injuries for cyclists are fractures and they more often sustain lesions on the upper limbs than other road users.

With regard to age, the number of victims among teenagers is peaking. Yet, it is mainly the elderly (65+) who suffer from the most serious injuries and make up more than half of the bicycle fatalities. Most bicycle crashes occur in the Flemish Region (85%) and on 50 km/h roads. Just alike moped riders and motor cyclists, Belgians indicate that they feel rather unsafe in traffic as a cyclist. The risk of cyclists to be seriously injured or killed in traffic (per kilometre travelled) is 23 times higher than the risk of a car driver to be seriously injured. Compared to other European countries, mortality among cyclists in Belgium is higher than average.

This summary of the safety of cycling seems to appear relatively negative for cyclists. However, analyses of the total benefits of cycling for society show a much more positive picture. De Hartog et al (2010), for instance, showed that a modal shift from cars to bicycles for short trips would result in nine times more life years gained than life years lost due to traffic accidents and an increased exposure to air pollution. These analyses clearly show that efforts are necessary to increase bicycle safety and to stimulate bicycle use.

An analysis of the international literature on measures to reduce bicycle accidents shows that speed management, in the largest sense, is the most crucial lever to increase bicycle safety. In order to diminish the fatality risk for cyclists, strategic visions like Vision Zero and Sustainable Safety recommend to limit the maximum speed allowed for motorised vehicles to 30 km/h in mixed traffic or 50 km/h (when there is a bicycle path or bus lane with less than 2.000 cyclists per day or when there is a separated bicycle path when there are over 2.000 cyclists per day) at locations where cyclists and motorized traffic are subject to possible direct conflicts. In areas with higher speed limits maximal efforts are necessary to segregate cyclists from motorized traffic.

Given the large number and the the severity of single vehicle crashes in the total number of bicycle accidents, the design and maintenance of the road infrastructure needs to to be sued to reduce obstacles and situations that can increase the accident risk for cyclists or that increase the potential seriousness of cycle accidents. At the level of the cyclists, the emphasis should be put on the cyclists' visibility and the use of bicycle helmets. A

recent meta-analysis on the use of the bicycle helmet shows that wearing a helmet decreases in the injuries of the head (general), serious head injuries, facial injuries and fatal head injuries. The risk of serious head injuries can be reduced by 60% when a cyclist is wearing a helmet. Wearing a helmet for cyclists is controversial in many countries. For example, the public support for the obligation to wear the helmet for cyclists in Belgium is only 46% according to the international ESRA survey and Belgium thus belongs to the five countries with the lowest support. It is of course also possible to promote the use of bicycle helmets on a voluntary basis without legislation.

An optimization of the passive and active safety of motorized vehicles and certainly its applications can also increase bicycle safety. Furthermore, the infrastructure can be improved or adapted as infrastructural defects (poorly maintained bicycle paths, holes in the road, leaves, etc.) are important causes of single bicycle crashes. In addition, efforts should be made to use forgiving infrastructure to deal with the consequences of a human error as well as possible. In-depth research shows that the human factor (human behaviour) remains the most important causal factor in road traffic accidents, also for cyclists. Systematic efforts are necessary at the level of traffic enforcement and road safety education, also for cyclists.

