



Pedestrians and Cyclists Summary

2018



What is the problem?

Walking and cycling are transport modes where unprotected road users interact with traffic of high speed and mass. Pedestrians and cyclists suffer the most severe consequences in collisions with other road users. Measures in contemporary cities, promoting environmentally friendly modes of travel, are expected to further increase walking and cycling. It is therefore particularly important to address the safety of these vulnerable road users.

How big is the problem?

Risk exposure: 20-40% of all journeys are travelled by cycle or on foot, with the highest percentage in the Netherlands and the lowest in Finland. Trips on foot take place most frequently in Great Britain, whereas bicycle trips are most frequent in the Netherlands, Denmark, and Sweden. Walking is a particularly frequent travel mode for children below the age of 12 and adults aged 75 and above. The bicycle is used most frequently by adolescents.

Risk of accident involvement: Comparing the accident risks of cyclists and pedestrians with those of car occupant can be problematic. To calculate risk some measure of exposure is required as a denominator. When distance travelled is used as denominator, driving in a car is more than nine times safer than walking and almost eight times safer than cycling. However, when time in traffic is used as denominator driving in a car is as safe as walking and only three times safer than cycling.

Size of accident injury problem: Pedestrians and cyclists constitute around 21% and 8% of all road traffic deaths in EU countries. Between 2006 and 2015, pedestrian fatalities decreased by around 36% in the EU and cyclist fatalities by around 27%. Since exposure data are available for only a few countries, the question remains whether the reduction in fatalities were caused by a reduction in kilometrage (exposure to danger) or by an increase in safety per walking / cycling kilometre.

What does science say?

Age groups most involved in fatal accidents

The age groups with the highest percentages of pedestrian fatalities are children younger than 14 and adults aged 65 and above. About 35% to 50% of the fatalities in these age groups are pedestrian fatalities; twice as much as the average percentage for all age groups.

About 12-20% of the fatalities in the age group 5 to 14 are cyclists; about twice as much as the average percentage for all age groups. Similar is true for adults between 65 and 79: 13-16% of the casualties in this age group are cyclists.

Contributory factors

There are various causes why motor vehicles collide with pedestrians and cyclists. Drivers may drive too fast and may not notice pedestrians and cyclists. It could also be that drivers do not expect pedestrians and cyclists from certain directions or do not expect that in certain circumstances pedestrians and bicyclists may start to act dangerously. Not only drivers, but also pedestrians and cyclists may lack hazard perception skills and/or take too much risk. In addition, drivers may not notice pedestrians and cyclists because they are poorly visible. This is aggravated at dusk, dawn, and night, especially when public lighting is absent or weak.

What are the solutions?

Long-term planning is needed to create the fundamental changes that will improve the safety and mobility of pedestrians and cyclists. Concepts like Sustainably Safe Traffic and Zero Vision provide the framework that long-term planning requires. Specific measures within the above framework are:

Land use planning and road design

- Pedestrian safety measures that are associated with urban planning and policy philosophies are area-wide speed reduction or traffic calming schemes, and provision of an integrated walking network.
- Properly designed crossing facilities at appropriate locations also improve pedestrian safety.
- The same basic planning principles that apply for pedestrians also apply for cyclists.
- When facilities for cyclists are being designed, five criteria are important: safety, coherence, directness, comfort and attractiveness.

Visibility: lighting and reflecting devices

- Both child pedestrians and cyclists benefit from conspicuity aids and the use of light-coloured and retro-reflective clothing.
- To ensure the visibility of cyclists, bicycles should be equipped with reflecting devices.

Vehicle design

- Injuries to cyclists and pedestrians can be reduced by better design of cars and heavy vehicles.
- Design measures include accident-friendly car fronts, and side-under-run protection on lorries.

Protective equipment for cyclists

- Wearing a helmet in the event of a cycling accident is estimated to reduce the risk of sustaining a head injury by around 42% and of sustaining brain injury by around 53%.

Education, training and campaigns

- Traffic training of young child pedestrians, preferably in a practical setting.
- A very cost-effective way to improve cyclists safety is to raise the profile of cycle accidents with the public and increase awareness of the dangers.
- Other road users, such as car drivers, have to learn how they can safely interact with pedestrians and bicyclists. One way of doing this is to incorporate hazard anticipation training with the emphasis on vulnerable road users in basic driver training and to also include hazard anticipation in the driving test.

Legal framework and enforcement

- Laws and penalties are important in providing protection for vulnerable road users and influencing driver behaviour.
- Laws are only as good as the enforcement process and the police are a major and important stakeholder in any road safety programme.

Notes

1. Country abbreviations

	Belgium	BE		Italy	IT		Romania	RO
	Bulgaria	BG		Cyprus	CY		Slovenia	SI
	Czech Republic	CZ		Latvia	LV		Slovakia	SK
	Denmark	DK		Lithuania	LT		Finland	FI
	Germany	DE		Luxembourg	LU		Sweden	SE
	Estonia	EE		Hungary	HU		United Kingdom	UK
	Ireland	IE		Malta	MT			
	Greece	EL		Netherlands	NL		Iceland	IS
	Spain	ES		Austria	AT		Liechtenstein	LI
	France	FR		Poland	PL		Norway	NO
	Croatia	HR		Portugal	PT		Switzerland	CH

2. This 2018 edition of Traffic Safety Synthesis on Pedestrians and Cyclists updates the previous versions produced within the EU co-funded research projects [SafetyNet](#) (2008) and [DaCoTA](#) (2012). This Synthesis on Pedestrians and Cyclists was originally written in 2008 by Ragnhild Davidse, [SWOV](#) and then updated in 2012 by Willem Vlakveld, [SWOV](#) and in 2015 by Chris Lines, [Transport Consultant](#).

3. All Traffic Safety Syntheses of the European Road Safety Observatory have been peer reviewed by the Scientific Editorial Board composed by: George Yannis, NTUA (chair), Robert Bauer, KfV, Christophe Nicodème, ERF, Klaus Machata, KfV, Eleonora Papadimitriou, NTUA, Pete Thomas, Un.Loughborough.

4. Disclaimer

This report has been produced by the National Technical University of Athens ([NTUA](#)), the Austrian Road Safety Board ([KfV](#)) and the European Union Road Federation ([ERF](#)) under a contract with the [European Commission](#). Whilst every effort has been made to ensure that the matter presented in this report is relevant, accurate and up-to-date, the Partners cannot accept any liability for any error or omission, or reliance on part or all of the content in another context.

Any information and views set out in this report are those of the author(s) and do not necessarily reflect the official opinion of the Commission. The Commission does not guarantee the accuracy of the data included in this study. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for the use that may be made of the information contained therein.

5. Please refer to this Report as follows:

European Commission, Pedestrians and Cyclists, European Commission, Directorate General for Transport, February 2018.

