How to make more cycling good for road safety?

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This paper discusses the current level of the road safety problems of cycling and cyclists, why cyclists run relatively high risks, and why cyclists may be considered as ‘vulnerable road users’. This paper is based on peer-reviewed research which give some idea how to reduce the number of cyclist casualties. However, this research is rather limited and the results cannot (easily) be transferred from one setting or country to another: generalization of results should only be done with the utmost care, if it is to be done at all. Interventions to reduce cyclist casualties worldwide seem to be of an incidental nature; that is to say, they are implemented in a rather isolated way. In a Safe System approach, such as the Dutch Sustainable Safety vision, the inherent risks of traffic are dealt with in a systematic, proactive way. We illustrate how this approach is especially effective for vulnerable road users, such as cyclists. Finally, the paper addresses the question of whether it is possible to make more cycling good for road safety. We conclude that when the number of cyclists increases, the number of fatalities may increase, but will not necessarily do so, and the outcome is dependent on specific conditions. There is strong evidence that well-designed bicycle facilities—physically separated networks—reduce risks for cyclists, and therefore have an impact on the net safety result, for example if car-kilometres are substituted by bicycle kilometres. Policies to support cycling should incorporate these findings in order to make more cycling good for road safety.

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1. Introduction

If we compare bicycle use among different countries there are enormous differences: from near absence to widespread use in countries such as the Netherlands. The amount of cycling is often partly determined by a country’s geography (hills and mountains) and its climate (temperatures, snowfall). There are countries where cycling is practiced for recreation. And, finally, there are countries in which cycling is a substantial part of everyday life. Although cycling activities also take place in rural areas, the majority of the bicycle kilometres in such countries are travelled in towns and cities, and over relatively short distances.

Differences in bicycle use can be observed in bicycle culture, purpose of bicycle use, the position of the cyclist in traffic, and the measures that have been taken to make cycling safer.

Many different arguments can be used to promote cycling. An important distinction that must be made is whether cycling is recreational, or whether it is a means of transport to travel from A to B. Some of the arguments used are: cycling is healthy, cycling is good for the environment if it takes the place of motorized journeys, cycling makes a contribution to the prevention of congestion because cyclists take up less space than (parked) cars, and cycling is cheaper than travel by passenger car or public transport. Compared to walking, cycling increases the distances that can be covered and in developing countries it can contribute to the economic development and aid the fight against poverty. Nowadays, more and more governments, cities and villages, communities encourage their citizens to cycle.

One important objection can be made against promoting cycling: it is rather dangerous. As a direct consequence of the laws of (bio)mechanics and the fragility of the human body cyclists are vulnerable in traffic. Cyclists fall easily and can sustain serious injury. In crashes, other than sometimes by a bicycle helmet, a cyclist is unprotected. Brain damage is a serious and frequent injury, often sustained by young people in particular. When a cyclist is injured in a crash with a motorized vehicle travelling at high speed, kinetic energy is processed. Furthermore, a cyclist can lose control of the bicycle, take a fall, and be injured, especially if a cyclist is inexperienced or when obstacles play a role. Often cyclists fall to obey the traffic rules and show unexpected behaviour in the eyes of other road users. The consequence is that cyclists have a relatively high crash rate compared to that of pedestrians and particularly that of drivers. Because cycling is relatively risky we have to ask ourselves whether or not it will increase injuries and fatalities if a government is successful and more people do indeed use a bicycle.