



Photo: Paul Voorham

Bicycle helmets: yes or no?

Whether or not to wear a bicycle helmet is a regular topic of discussion in the Netherlands; in recent years specifically focusing on the bicycle helmet for children. One group argues that a bicycle helmet limits the feeling of freedom, while the other contends that it improves cyclist safety. This article has a look at some of the arguments.

First of all, how effective is a bicycle helmet and where exactly lies its protective value?. To find the answer to the question how much head and brain injury could be prevented in the Netherlands if bicycle helmets were worn, we first need information about the bicycle crashes which result in head and brain injury.

Research

Literature studies, in-depth research, biomechanical studies of the possible limitations of the bicycle helmet and an evaluation study of the way helmets are tested and approved were carried out to investigate the effectiveness of bicycle helmets. The conclusion is that the bicycle helmet – provided that it is both well-fitting and worn correctly – is likely to be effective in reducing the risk of incurring head or brain injury. Furthermore, according to the

researchers, bicycle helmets are expected to be particularly more effective for children, because a child's head has a shorter distance to fall than the head of an adult. The helmet therefore offers relatively more protection.

Children and youngsters

Head-/brain injury is relatively frequent among children and youngsters. Children and youngsters incur brain injury more often than older road users and they also have brain injury more than other kinds of injury. More than 60% of the young seriously injured cyclists in the age group 0-17 years old have head and/or brain injury after a crash with a motor vehicle, as opposed to an average of 47% for all road users. In the same age group, the percentage of brain injuries due to crashes not involving a motor vehicle is between 33 en 56%, as opposed to

an average of 29% for all road users. Among young children in the age group 0-5 years old, nine out of ten head/brain injuries is incurred in a bicycle crash not involving a motor vehicle; these are often falls without any crash opponent or crash object being involved.

Research indicates that about 42% of the seriously injured cyclists could be prevented. If we look at the available data of the most recent five years (2005-2009), we see a total of 2,700 seriously injured cyclists (MAIS2+) in the age group 0 to 14 years old. On the assumption that none of these children wore a helmet, the estimated number of casualties saved amounts to approximately 225 seriously injured children per year. For MAIS3+, which is more severe injury than MAIS2, this would mean an annual reduction of about 45 seriously injured children.

Bicycle helmet the solution?

The bicycle helmet is not intended to prevent crashes, but to limit injury severity once a crash does occur. It is therefore important to also

take measures to prevent crashes occurring. This can for instance be done by providing an infrastructure that is safe for cyclists and by ensuring that young cyclists are taught sensible and safe cycling; sufficient cycling experience is also of importance here.

Less bicycle use

International experience, for example in Australia, indicates that making helmet use legally compulsory has resulted in fewer people cycling. Dutch policy, however, is aimed at increasing the proportion of the distance travelled by bicycle. Not only is cycling good for one's health, it is also a more environmentally friendly mode of transport than a motorized vehicle. In the Netherlands, the introduction of

compulsory helmet use is also likely to result in reduced cycling. However, in a country with such a strong utilitarian cycling tradition, it remains to be seen whether compulsory helmet use will affect cycling to the same extent.

Conclusion

An increase in the use of helmets will result in a decrease of the number of casualties, as research shows a correctly worn bicycle helmet reduces the risk of head and brain injury. SWOV is therefore of the opinion that stimulating

voluntary use of the bicycle helmet is to be recommended. Considering the extent of head and brain injury among children and their limited height, the bicycle helmet may help to prevent head and brain injury for this group in particular. Solving the problem of bicycle safety, however, requires more than just a bicycle helmet. Safe bicycle facilities are required to make cycling safer. SWOV finds that compulsory helmet use should not be introduced in the Netherlands until all consequences of such a measure have been investigated.

A recently updated SWOV Fact sheet is available on this topic:
[Bicycle helmets](#) (2012). SWOV, Leidschendam.