



Making Roads Safer

# Improving Road Safety For Cyclists

Cyclists can  
make informed  
choices about  
which helmet to  
buy thanks to  
new safety tests



The Road Safety Trust, dedicated to making the UK's roads the safest in the world, has funded Folksam, the Swedish insurance company, to expand their annual tests and include additional cycle helmets available to UK consumers.

Coinciding with a significant increase in cyclists as well as growing interest in e-scooters and e-bikes on the roads, the results of these tests reveal how some cycle helmets offer significantly more protection than others.

## Q: Don't Cycle Helmets Already Have To Pass A Safety Test?

Yes, there is a minimum safety standard, EN 1078, that needs to be met in order for any bicycle helmet sold in the EU to obtain the CE mark. Unlike the safety rating scheme for motorcycle helmets (SHARP<sup>1</sup>) or the Euro NCAP safety rating scheme for cars<sup>2</sup> however, the impact testing required by the existing EU minimum safety standard for bicycle helmets is considered to be rather lax.<sup>3</sup> The result is that that bicycle helmets meeting EN 1078 standard requirements may not perform adequately in real-life crashes.

The EU test protocol focuses on helmet retention and on direct impact to the surface of the helmet with a target of reducing the risk of skull fracture. **It does not examine oblique impacts that inflict rotational forces on the head and which can result in consequent concussion injury to the brain.**

Folksam is one of the organisations around the world that has developed a number of new test protocols that examine helmet performance both in direct impact and such rotational forces from oblique impact.<sup>4</sup>

**Folksam**

At the same time, there have been developments in helmet design targeted at providing protection to wearers from the rotational forces that result from oblique impact. The best known of these is the Multi-directional Impact Protection System (MIPS) technology. Helmets with MIPS have a liner that aims to reduce rotational motion of the head by allowing the helmet interior to slip against the surface of the head and thus reduce the risk of severe brain injury.

Under the existing minimum standards system, prospective purchasers of bicycle helmets **cannot** be sure that a given helmet will provide a high degree of protection.

1. <https://sharp.dft.gov.uk> 2. <https://www.euroncap.com/en>  
 3. See e.g. <https://www.helmetfacts.com/standards/en-1078/>  
 and <https://www.cyclehelmets.org/papers/c2023.pdf>  
 4. [https://nyhetsrum.folksam.se/sv/files/2019/06/S40150\\_Rapport\\_vuxen\\_ENG.pdf](https://nyhetsrum.folksam.se/sv/files/2019/06/S40150_Rapport_vuxen_ENG.pdf)



## The 2020 Safety Tests and Results

Aware of the lack of consumer information available to UK purchasers of bicycle helmets, and of the claims made for the better safety performance of helmets with MIPS and similar systems, the Road Safety Trust funded Folksam in 2020 to expand its usual annual tests of helmets on the Swedish market to include a number of helmets that are widely available to UK consumers.

**It must be stressed that it has only been possible to test a few helmet models in 2020; no conclusions should be drawn about the performance of helmets that were not included in this round of tests or in previous annual test rounds carried out by Folksam.**

The research conducted by Folksam included 27 cycle helmets, of which 23 are available on the UK market. Five physical tests were conducted, two shock absorption tests with straight perpendicular impact and three oblique impact tests. The tests were performed by Research Institutes of Sweden (RISE), which is accredited for testing and certification in accordance with the European standard. Computer simulations were subsequently carried out to evaluate the risk for concussion.

Eight helmets in 2020 were given the 'recommended' label, including the four<sup>5</sup> below that are readily available on the UK market:

**Bell Super Air R MIPS**  
(Mountain biking)



**RECOMMENDED**

**Bontrager Specter WaveCel**  
(General purpose available for around £100 or less)



**RECOMMENDED**

**Scott Vivo Plus MIPS**  
(General purpose available for around £100 or less)



**RECOMMENDED**

**Specialized S-Works Prevail II with ANGi MIPS**  
(General purpose)



**RECOMMENDED**

5. Hövding 3.0 is also 'recommended' and available to the UK market but this is a head protector, which protects the head with an airbag in the event of an accident, rather than a helmet  
 6. [www.roadsafetytrust.org.uk/cycle-helmet-testing](http://www.roadsafetytrust.org.uk/cycle-helmet-testing)



Some additional ‘recommended’ models and overview results of all the cycle helmets available to UK consumers tested in 2019 and 2020 by Folksam are on the Road Safety Trust’s website, along with the full 2020 Folksam test report<sup>6</sup>. This information is designed to assist cyclists with their buying decisions and retailers in the advice they may share with customers when considering the safety element of cycle helmets available.

## Next Steps

The Road Safety Trust would like to encourage the development of a star rating system for cycle helmets and is organising a virtual international workshop for professionals in 2021 to discuss further. The Trust would also like to work with manufacturers to submit more UK helmets for testing by Folksam in 2021 so that cyclists in the UK can remain informed about which helmets come ‘recommended’ thanks to the additional oblique impact tests.

For enquiries, please email [info@roadsafetytrust.org.uk](mailto:info@roadsafetytrust.org.uk)

[www.roadsafetytrust.org.uk](http://www.roadsafetytrust.org.uk)  RoadSafetyTruUK

### Oliver Carsten, Trustee:

“All the ‘recommended’ helmets from the current set of tests incorporate technology for protection against rotational forces, either in the form of Multi-directional Impact Protection Systems (MIPS) or in the form of competing technologies such as Bontrager’s WaveCel. In general, helmets with such technologies performed better than helmets without it, but it is not the case that all the tested helmets with such protection performed well enough to be ‘recommended’.

Road Safety Trust hopes that these test results will help to inform cyclists in the UK when they come to buy their helmets, and also encourage helmet manufacturers to raise their game and bring to market new helmet models that perform at least as well as the best existing models.”

