Some bicycle helmets offer significantly more protection than others

It is important that, when consumers purchase safety equipment, they spend their money wisely. Consumer testing can greatly assist in this by informing prospective purchasers about the objective performance of alternative products. An example of such testing is the car safety rating scheme of Euro NCAP (https://www.euroncap.com/en) which has helped to inform consumer choice and to motivate vehicle manufacturers to improve the safety of their products.

The UK Department for Transport sponsors a safety rating scheme for motorcycle helmets called SHARP (https://sharp.dft.gov.uk/), but no comparable information is easily available to UK purchasers of bicycle helmets. All bicycle helmets sold in the EU have to meet a minimum safety standard, EN 1078, in order to obtain the CE mark, but the impact testing required by that standard is considered to be rather lax (see e.g. https://www.helmetfacts.com/standards/en-1078/ and https://www.cyclehelmets.org/papers/c2023.pdf). Thus helmets that meet the minimum requirements may not perform adequately in real-life crashes. Therefore prospective purchasers of bicycle helmets cannot be sure that a given helmet will provide a high degree of protection.

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 impact, which result in rotation of the head and consequent concussion injury to the brain. Over the last few years, a number of new test protocols have been developed that examine helmet performance both in direct impact and in oblique impact. Examples are the tests carried in the U.S. by Virginia Tech on behalf of the Insurance Institute for Highway Safety (https://www.helmet.beam.vt.edu/bicycle-helmet-ratings.html) and the tests carried out in Sweden by Folksam (e.g. for 2019: https://nyhetsrum.folksam.se/sv/files/2019/06/S40150_Rapport_vuxen_ENG.pdf).

At the same time, there have been developments in helmet design targeted at providing protection to wearers from the rotational energy that results from oblique impact. The best known of these is the Multi-directional Impact Protection System (MIPS) technology,
developed in Sweden, but there are also a number of other systems with similar objectives. Helmets with MIPS have a liner that aims to reduce rotational motion of the head by allowing slippage of the helmet interior with relation to the surface of the head and thus reduce the risk of severe brain injury.

Aware of the lack of consumer information 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 has funded Folksam 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; 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 performed by Folksam.

However, the results do provide much food for thought. Some helmets performed significantly better than others and those have been given the “Recommended” label in the report by Folksam. Of the eight recommended helmets, four are available on the UK market\(^1\). They are:

- Bell Super Air R MIPS
- Bontrager Specter WaveCel
- Scott Vivo Plus MIPS
- Specialized S-Works Prevail II with ANGi MIPS

The Bell helmet is targeted at mountain biking. The other three are more general-purpose. The results for the Bontrager and Scott show that good safety performance does not require high cost: both can be obtained for around £100 or less. Folksam’s test results from 2019 (https://nyhetsrum.folksam.se/sv/files/2019/06/S40150_Rapport_vuxen_ENG.pdf) provide some additional recommended models.

All the recommended helmets from the current set of tests incorporate technology for protection against rotational forces, either in the form of MIPS or in the form of competing technologies such as Bontrager’s WaveCel. In general, helmets with such technologies performed better than helmets without, but it is not the case that all the tested helmets with such protection are recommended.

We hope that these test results will help to inform purchasing decisions by UK consumers, 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.

*Foreword written on behalf of the Road Safety Trust by Oliver Carsten, Trustee and Chair of the Road Safety Initiatives Committee.*

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\(^1\) Hövding 3.0 is also recommended by the report 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.