

The cardboard crash helmet

16 September 2020, by David Bradley



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In the age of plastic waste, the environmentally conscious are hoping to replace many of the common materials, such as expanded polystyrene in everyday objects with sustainable and recyclable materials. Now, researchers in China report successful crash tests of a new bicycle safety helmet that uses honeycombed and corrugated cardboard instead of polymer foam to provide protection.

The team describes details of the design, its environmental benefits and the positive results from crash-test simulations. Bei Li, Haiyan Li, Shihai Cui, Lijuan He, and Shijie Ruan of the Center for Injury Biomechanics and Vehicle Safety, at Tianjin University of Science and Technology in Tianjin provide details in the *International Journal of Vehicle Safety*.

For youngsters on cycles, accidents often end with a blow to the head, which can be fatal or even lead to life-changing injuries and disability. As such all cyclists, young and old are encouraged to wear a [safety](#) helmet that will offer some degree of protection should they fall from their bicycle in any kind of accident and risk an impact to the head. Indeed, children's head [injury](#) and loss of

consciousness has been shown to be 63 and 86 percent less, respectively, when helmets are worn.

The team has now demonstrated that the same safety profile might be possible with cardboard crash helmets that have the added benefit of being fabricated from [sustainable resources](#) and precluding the addition of yet more plastic waste to the environment.

More information: Bei Li et al. Biomechanical performance of a bicycle helmet design on a six-year-old head impact protection, *International Journal of Vehicle Safety* (2020). [DOI: 10.1504/IJVS.2020.109217](https://doi.org/10.1504/IJVS.2020.109217)

Provided by Inderscience

APA citation: The cardboard crash helmet (2020, September 16) retrieved 17 October 2021 from <https://techxplore.com/news/2020-09-cardboard-helmet.html>

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