Electrically Assisted Pedal Cycles

Electrically Assisted Pedal Cycles (EAPCs) are pedal bikes that are fitted with a motor that travel at higher speeds than conventional bicycles. Recent international data shows that there is an association with increased severity of injury, particularly in paediatric populations. Currently, EAPCs are subject to the same legislation regarding helmet use as pedal bikes in the UK and EU which does not mandate the use of a helmet.

Trichinopoly Krishna et al. examined safety concerns surrounding EAPCs in the context of existing EU and UK legislation to assess whether changes to these should be made by public health bodies to mitigate the increased risk of injury.

A retrospective international literature review looking at electric bicycle-related trauma and legislation was conducted using a systematic search of internet databases. Peer-reviewed articles and online resources were reviewed based on relevance to the above objective.

EAPCS can travel at up to 17.5 mph, resulting in higher speeds of travel and collision. The use of EAPCs has been associated with increased severity of head injury. Bicycle helmets have been shown to reduce the severity of head injury in accidents involving both EAPCs and pedal cycles. Healthcare providers should pay extra attention to the possibility of severe injuries when a patient had a bicycle accident with an EAPC, especially in paediatric populations.

Given that EAPCS have been associated internationally with increased severity of head injuries they propose that existing EU and UK legislation may not be fit for purpose with respects to increased EAPC usage and criteria for impact protection of existing helmets. Further research and audit with more accurate recording of data associated with EAPCs use and associated injuries would inform enhanced regulation regarding EAPC usage in the future [1)].

E-bikes may inflict various cranial injuries, including fractures and intracranial bleeds, and may lead to significant morbidity and mortality. Education of children to use protective gear, wide exposure of younger adolescents to traffic laws, and limiting the use of e-bikes to older children, are all necessary actions [2)].

1)
Trichinopoly Krishna S, Roberts S, Dardis R. Electrically assisted pedal cycles: is new legislation required to mitigate increased head injury risk? Br J Neurosurg. 2021 Jun 26:1-4. doi: 10.1080/02688697.2021.1940846. Epub ahead of print. PMID: 34180330.

2)
Karepov Y, Kozyrev DA, Benifla M, Shapira V, Constantini S, Roth J. E-bike-related cranial injuries in pediatric population. Childs Nerv Syst. 2019 Aug;35(8):1393-1396. doi: 10.1007/s00381-019-04146-8. Epub 2019 Apr 15. PMID: 30989331.