

Reduction in the exposure to being out-of-position among car occupants who used a sleeping device

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Abstract-

Background: This study assesses the impact on safety of a system designed to enhance sleep in car passengers. The system holds the head posteriorly and limits its rotation in the sagittal and frontal planes, modifying the occupant's head position. This device may have an influence on the interaction between the occupant and the vehicle restraint systems.

Methods: It was a randomised, prospective, single-blind, cross-over controlled study in which 41 volunteers were exposed to using the system while riding as car passengers. Whether the device influenced the posture of the occupants and prevented them from adopting out-of-position (OOP) configurations was also analysed. Occupants were videotaped while they were using both the innovative system (cases) and their normal sleeping device (controls), if any.

Results: Controls were exposed to OOP situations in 825 occasions (18.4%; 95% CI 17.3% to 19.6%), while cases were exposed in 416 occasions (9.3%; 95% CI 8.4% to 10.2%). The paper also analysed how many cases and controls were exposed at least once to a particular event and how frequent a single participant incurred in an OOP situation. In both cases, the innovative device showed a reduction in exposition. When OOP situations were grouped into severe, moderate and minor events, the innovative device produced a statistically significant reduction in the occurrence of severe and moderate events.

Conclusions: A device originally designed to improve comfort and rest in car passengers has been found to reduce the exposure of the occupants to being OOP while resting in the car.

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