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Characteristics of headgear release mechanisms: Safety implications

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ABSTRACT

The risk of serious eye injury caused by a headgear appliance is a significant concern. Various safety release mechanisms have been developed in order to help prevent this type of injury, but little testing has been done. The purpose of this study was to test 18 headgear release mechanisms. Four characteristics were evaluated: force at release, extension at release, consistency of release, and performance at different rates of pull. At the point of release, mean force values ranged from 5.33 pounds to 32.83 pounds, and mean extension values ranged from 0.84 inches to 2.93 inches. Consistency was based on the percent standard deviation, and the appliances were ranked relative to each other. Nine of the 18 appliances had statistically significant differences in the two pull rates for either variable or both, but the clinical significance is uncertain. The results show a wide range of performance among the 18 appliances tested and indicate that some perform better than others.

KEY WORDS: Headgear injury, Headgear release mechanisms, Headgear safety.

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