

Title: A Comparison of Injury Patterns in Helmeted and Non-Helmeted Skiers and Snowboarders Admitted to a Level I Trauma Center.

Objective: To investigate the relationship between helmet use on injury patterns and clinical course in persons sustaining a head injury while skiing or snowboarding in Vermont.

Methods: The authors performed a retrospective review of all patients admitted to a single Level I trauma center who sustained a closed head injury between 2002 and 2008. A review of the Fletcher Allen Health Care trauma registry identified all patients who were skiing or snowboarding at the time of injury. Patients were grouped according to helmet use during injury. Primary outcome of interest was injury pattern identified by radiographic imaging on admission. Secondary outcomes included mortality, hospital length of stay, and home discharge.

Results: The authors found no differences in symptoms on presentation between the two groups. The incidence of skull fractures was lower in the helmeted group (14%) than the non-helmeted group (51%; $p < 0.0001$). There was also a higher trend of epidural hematomas in the non-helmeted group (9%) than the helmeted group (0%; $p = 0.14$). Clinically, helmeted patients had a shorter duration of hospital stay (2.2 vs 5.7 days; $p = 0.02$), and a trend toward a higher rate of home discharge (90% vs 74%; $p = 0.09$). Mortality did not differ between groups.

Conclusions: In the authors' experience, helmet use is associated with a lower incidence of skull fractures and epidural hematomas for patients admitted to the hospital following a closed head injury while skiing or snowboarding. While helmet use did not have a significant affect on other types of injury, it was linked with a shorter duration of hospital stay and a higher rate of home discharge. Mortality was not significantly affected by helmet use.