Research letter

Hockey injuries of the spine in Canada, 1966–1996

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There is increasing public concern in Canada about the number of hockey injuries in both amateur and professional leagues. Unfortunately, few data are available.[1–4] This report updates a Canadian registry of spinal injuries sustained while playing hockey. First published by Tator and Edmonds in 1984[4] and updated every 2 to 3 years, the registry now includes cases from 1966 to 1996.

In 1981 the initial questionnaire was sent to all neurosurgeons, orthopedic surgeons, and physical medicine and rehabilitation specialists in Canada. The latest questionnaire, distributed to 1965 physicians in 1997, adds to the registry cases from 1994 through 1996. Sport medicine physicians were added to the most recent physician sample. Additional cases were obtained from a study of catastrophic recreational injury in Ontario and from player insurance reports at the Canadian Hockey Association.

For the purposes of this registry, our definition of a spinal injury includes any fracture or dislocation of the spine sustained by a person playing hockey, with or without injury to the spinal cord or nerve roots. In addition, cases of transient paralysis or transient sensory loss (or both) have been collected since March 1987.

Table 1: Hockey spinal injuries in Canada (1966–1996)

Period	Total no. of injuries	No. (and %) of severe injuries*	No. of injuries due to checks or pushes from behind†
Before 1976	2	0 (0)	1
1976–1978	7	5 (71)	1
1979–1981	22	7 (32)	5
1982–1984	41	5 (36)	11
1985–1987	36	7 (19)	13
1988–1990	51	4 (27)	21
1991–1993	49	9 (18)	14
1994–1996	35	6 (17)	8
Total	243	63 (26)	74

*Severe injury defined as complete loss of motor function below the level of injury. †Documentation was adequate to determine the mechanism of injury for 184 of the 243 cases.

In Canada, 243 spinal injuries were reported for the period 1966–1996 (Table 1). Only 12 (19%) of the 63 major spinal injuries occurred before 1982. The mean number of cases reported annually from 1981 to 1996 was 14, and the maximum number (18) was reported in both 1990 and 1992. The increase in injuries must be interpreted cautiously because of possible reporting bias. Six players are known to have died as a result of their injuries. Table 1 shows that the percentage of severe injuries declined over the two most recent 3-year periods. Burst fractures and fracture–dislocations were the most frequent injuries recorded. We had adequate documentation to assess the level of injury for 216 (89%) of the 243 cases: most (184 [85%]) of these were at the cervical level.

A push or check from behind accounted for 74 (40%) of the 184 cases of injury for which there was adequate documentation to determine the mechanism of injury. An impact with the boards accounted for 157 (77%) of the 204 cases of injury for which there was adequate documentation of the object impacted. Impact between players (32/204 or 16%) was also a frequent mechanism of injury, whereas impacts with the ice or a goal post were less frequent.

Organized games accounted for 166 injuries, whereas 10 occurred during practice and 4 occurred during shinny games; for the remainder the circumstances were unknown. In our case series, the median age was 17 (range 11 to 47) years, and only 6 of the injured players were females. Ontario accounted for 126 (52%) of the injuries, whereas only 22 (9%) came from Quebec, a value comparable to those of individual western provinces. In our view, it is unlikely that this regional variation is attributable to differences in reporting between provinces.

The possibility of incomplete reporting and the absence of a rate per 100 000 hockey players, 2 methodological problems in this study, impair our understanding of hockey injuries. We found that about 50% of spinal cord injuries occurred in the 16–20 year age group and that most occurred in games at the competitive level (data not shown). These problems speak of the need for a surveillance system for hockey injuries for all age groups and all levels of competition.

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