Ice Hockey Injuries
A Review

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Summary

Ice hockey is a fast-paced game involving both finesse and controlled aggression. Injuries are related to direct trauma (80%) and overuse (20%), with high puck velocities, aggressive stick use, and body checking (collisions) accounting for most of these. A participant can anticipate an injury after playing 7 to 100 hours of hockey, depending on his age, and most injuries are caused during the actual game rather than during practice. Although facial injuries are common, they are decreasing because of adequate use of helmets and masks. Conversely, cervical spine injuries are being reported more frequently.

Injuries to the upper extremity include acromioclavicular joint dislocations, scaphoid fractures, and ‘gamekeeper’s thumb’. Injuries to the lower extremity predominantly involve soft tissue, with strains of the hip adductor, tears of the medial collateral ligament of the knee, and contusions of the thigh are common. Scientific studies have reduced injury by providing improved protective equipment, stricter rules and their enforcement, and effective training and conditioning.

Ice hockey is a fast-paced game involving acceleration and deceleration forces within a rigid framework of unyielding boards and the skating surface. High-velocity impact with sticks, a puck, and occasionally a skate blade makes the potential for injury in the hockey arena significant (fig. 1).
Sports medicine and other health care specialists including ophthalmologists, neurosurgeons and orthopaedists have applied their skill and energies toward the care of the modern ice hockey player, and useful information has been obtained regarding the mechanisms and types of injuries characteristic of this aggressive game. Epidemiological data and improved reporting of injuries to athletic and health organisations have helped establish a foundation on which to base measures for the prevention of these injuries. In this review, we outline the aspects of the game that increase the injury potential, identify epidemiological factors, describe the types of injuries, and finally highlight the preventive measures necessary for avoiding injury.

1. Injury Potential

Competence and success in ice hockey are believed to be due primarily to skill rather than size (Houston & Green 1976). However, the skill of a smaller player is often a function of his ability to obtain high skating speeds quickly and to change direction without slowing. These manoeuvres involving rigid boards, goalposts, and opposing players eventually will result in high-impact collisions regardless of the player's skill. Such collisions result in blunt injuries to the extremities, viscera, and head. Added to this is the violence that is possible with sticks, pucks, and skate blades. Sim and Chao (1978) objectively measured this injury potential with high-speed cinematography (fig. 2). They documented skating velocities of about 48 km/h (30 mph) for senior amateur players and 32 km/h (20 mph) for peewee players (age 12 years). Sliding speeds of about 24 km/h (15 mph) were also recorded. Because the player has less ability to change direction or position while sliding, injuries to the unprotected body are more likely during this time. In a recent review of neck injuries in ice hockey (Tator 1987), sliding was a common mechanism of cervical spine injuries.

The hockey puck, 6oz (170g) of hard processed rubber, reaches velocities of up to 192 km/h (120 mph) in professional hockey, 144 km/h (90 mph) in senior recreational hockey, and more than 80 km/h (50 mph) in peewee hockey. Sim and Chao (1978) measured the maximal impact force of the

Fig. 1. Collisions with goalposts, ice playing surface, and other players characterise aggressive nature of this competitive sport [reprinted from Sim et al. (1989) by permission of Cliggott Publishing Company].