FIELD HOCKEY INJURIES

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At the time of writing of this article, the South African Senior National Teams are placed 12th for the Men and 11th for the Ladies in the latest FIH (International Hockey Federation) World Rankings. Having recently won the Africa Cup in November 2013, both have qualified for the 2014 Rabobank Hockey World Cup to be held in The Hague, Netherlands. The World Cup happens every 4 years and is the biggest field hockey tournament outside of the Olympics.

Field Hockey is one of the most popular team sports and at present is played in over 132 countries. Mainly amateur and semi-professional in most countries except in Europe, where players are presently fortunate enough to be part of a growing professional era in the sport. The Hero Hockey India League (based on the commercially successful model used in the Indian Premier League for 20/20 cricket) had its inaugural season in January-February 2013; has also been a welcome addition to this new era.

Its origins have been depicted in ancient games as far back as 200BC, with its current form dating back to the 1800’s in the United Kingdom. It was introduced into the Olympic games in 1908.
The aggressive nature of the sport, the high velocity of both ball and stick, and the relative lack of protective equipment (except goalkeepers), all contribute to the inherent dangers of participation in this sport. Rule, surface and equipment modifications, outdoor and indoor seasons, better skilled and trained players; have all, in effect, increased the tempo in all forms of the game and so changed the types and incidences of injuries in the sport.

Alcock et al\textsuperscript{10} stated that the injury rate in the Australian Hockey League was between 15-32\% amongst all its participants. A 15year NCAA Collegiate study\textsuperscript{1} showed players were twice as likely to be injured during matches than in practices (7.87 vs. 3.70 injuries per 1000 athlete-exposures). Of all those recorded injuries, 40\% of match injuries and 60\% of practice injuries were isolated to the lower limb, with goalies, midfielders and multi-position players being the most likely to have sustained injuries\textsuperscript{1}.

The most frequently injured site of the body was the lower limb (51\%), followed by the head/face (34\%), upper limb (14\%), and torso (1\%)\textsuperscript{12}. The most prevalent types of injuries were ankle sprains, followed by hand fractures and head/face injuries\textsuperscript{12}.

The Monash study (2002)\textsuperscript{10} showed that 41\% of injuries resulted from contact with a stick; 23\% from contact with a ball (usually elevated) and 11\% were from non-contact incidences. Overuse injuries accounted for 18\% of male injuries and 32\% of female injuries respectively\textsuperscript{10}.

Contact injuries (ball and stick) accounted for 27\% of male injuries and 18\% of female injuries\textsuperscript{10}. Head, facial, dental and orbital injuries had a surprisingly low frequency rate (less than 8.5\% of all injuries in the NCAA Collegiate Study\textsuperscript{1}).

324 players were observed during 58 matches during the Men’s Field Hockey Junior World Cup in 2009\textsuperscript{13}. The descriptive account from this tournament of head and facial injuries, recorded a total of 24 such injuries during this period (frequency rate calculated at 16/1000 match hours and 19/1000 player matches\textsuperscript{13}). The incidence of these injuries was higher during the second half of games and during the medal/ranking phase of the tournament\textsuperscript{13}.

The majority of head and facial injuries are minor, but can be horrific and devastating especially if ocular damage is the result (as described in the 3 case studies below\textsuperscript{4}).
Case 1: 13 year old player, hit in the left eye by the stick of an opponent, suffered immediate loss of vision and was admitted to hospital. Examination under general anaesthesia showed a large horizontal corneo-scleral laceration, prolapsed iris and ciliary body and the lens could not be identified. Primary repair failed and a total hyphaema was still present 6 weeks postoperatively. A subsequent scan showed a retinal detachment. Vitrectomy was carried out, but a fibrotic retina proved impossible to replace. At follow up, the eye had no perception of light and was becoming phthisical.

Case 2: 14 year old player, sustained a blow to her left eye running into a high follow through of a stick during a tackle. On admission, a perforating injury with no subjective perception of light was present. A long laceration extended vertically from the cornea well into the sclera above. Retina and vitreous protruding from the wound were excised, and the laceration sutured. Iris tissue was identifiable, and the anterior chamber was repaired. Several weeks later the eye was still blind and was becoming soft and shrunken.

Case 3: 29 year old player, was admitted after having been hit in the right eye by a stick during a follow through stroke of an opposing player. An extensive scleral rupture was noted, which extended posteriorly from the limbus with prolapse of uveal tissue. Avulsions of the upper and lower lids, affecting both canaliculi and the levator aponeurosis, were also noted. Primary repair was undertaken. Postoperatively, extensive intraocular haemorrhage persisted and the eye became painful; it was eviscerated three days later.

Contributory factors include the universal absence of face protection (amongst outfielders) and a stick whose shape still permits orbital penetration. Rule changes have enforced safer play amongst outfielders during games, but these tragedies have and can still occur.

With the introduction of synthetic surfaces in 1989, injury statistics have changed accordingly, with most studies showing an increase in incidence in lower limb injuries, particularly in areas such as the ankle (sprains) and knee (anterior cruciate ligament ruptures and meniscal tears).

A study by the Queensland Academy of Sport showed that injuries comprised mainly of strains (32%), sprains (24%), overuse injuries (18%) and fractures (12%).
Typical types of injuries (acute and overuse) include superficial abrasions and deep lacerations; fractures and dislocations (fingers and shoulder); sprains (ankle and acromio-clavicular); strains (calf, hamstring, quadriceps); groin strains (Gilmore groin / Sportman’s hernia); exercise associated muscle cramping; ligament ruptures (knee); rotator cuff injuries (traumatic sub-acromial bursitis); lower lumbar issues and concussions.

Most contact head/neck/face (71%) and hand/finger/thumb (68%) injuries occurred when the player was near the goal or within the 25-yd area\(^1\). Concussions were also found to have a 6times higher risk during games than during practices\(^1\).

Counter measures that have been instituted have involved rule changes and the use and development of better protective equipment. Rule modifications (to lessen field congestion), standardization and improved officiating (especially penalizing dangerous play) at all levels and age-groups; compulsory shin-pads, mouth guards (not yet compulsory) and protective hand guards for outfielders; the use of new transparent facemasks, protective cricket boxes and cricket gloves for all penalty corner defensive teams; less bulky, more mobile but fully protective goalkeeping equipment; have all been instituted to decrease traumatic injury rates and incidences.

Improved fitness and strength conditioning, position specific training, pre-season and in-season screening, functional neuromuscular balance exercise programs, evidence based injury prevention interventions (prophylactic ankle taping/bracing) have all helped reduce overuse injury rates and incidences\(^1\).

Atypical injuries and illnesses still occur and have presented some interesting medical challenges over the years.

Despite substantial protective equipment for the goalkeeper, trauma to these covered areas can still occur. Testicular trauma is an extremely painful and unfortunate injury that can occur if the protective box/cup is not securely fastened or is displaced from protecting the scrotal area during play. Outfielders (who do not wear protective boxes/cups) are more at risk for these rare occurrences (usually from deflections).
Most documented occurrences have fortunately involved self-resolving contusions and haematomas. However, the risk of testicular torsion and rupture is present. Both are managed primarily with cryotherapy and the necessary use of oral analgesics and anti-inflammatories. Further management by a urologist would include an ultrasound scan and possibly an MRI, followed by either surgical or conservative interventions as deemed appropriate to the individual situation.

The globalization of the sport and the hosting of tournaments in various parts of the world (especially South East Asia, South America and Africa), has exposed teams (players and management) to many diseases endemic to those areas. Normal travel precautions are taken from flu and anti-tetanus inoculations to the drinking of bottled water and making contact with the local medical services (if a tournament doctor is not available or has not been appointed, which has been experienced in some instances) for any recent outbreaks that would be of concern.

Dengue fever is an infectious tropical disease caused by the Dengue virus for which there is no commercially accessible vaccine available at present. It is transmitted by several species of mosquito and is endemic to various parts of the world (areas where major tournaments are held each year).

The virus has 4 different subtypes where infection with one type usually gives lifelong immunity to that specific type as well as short-term immunity to the others. Subsequent infection with a different sub-type increases the risk of severe complications. This is a concern for players that visit areas where different sub-types are predominantly found, especially if they have been previously infected.

In a small number of cases, life-threatening Dengue haemorrhagic fever and Dengue shock syndrome can occur requiring aggressive intravenous rehydration and blood transfusions.

2 players of the Senior National Men’s team were unfortunately hospitalized for 7 days having contracted this disease during the recent World League Semi-Finals in Malaysia this year. Both presented with typical symptoms of pyrexia, myalgia, fatigue, headaches and a skin rash similar to that of measles. Both were managed with supportive care with oral and intravenous rehydration and were discharged once their leucopaenia and thrombocytopenia had stabilized. They were successfully managed with help from multiple colleagues (tropical infectious disease specialists, intensive care specialists and cardiologists) over the past few months.

Preventative measures similar to that of malaria are and have been encouraged within the National Teams to limit the exposure to mosquito bites in these countries.

Despite the inherent dangers associated with the sport, hockey injuries are rarely traumatic and also rarely require surgery (less than 6% of all hockey injuries sustained required surgical intervention in the NCAA Collegiate Study)\(^1\). The published epidemiological data that is available does show a decline in injury rates over the years and confirms that catastrophic injuries are also rare compared to other sporting codes\(^1\).

**REFERENCE LIST and RESOURCES:**


(3) Fenety, A and Kumare, S.: Isokinetic Trunk Strength and Lumbosacral Range of Motion in Elite Field Hockey Players reporting Low Back Pain. JOSPT 16(3); 129 135.


(15) http://en.wikipedia.org/wiki/Field_hockey


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