Preventing penalty corner injuries and head trauma in field hockey: time to consider the power play?

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In an effort to pre-empt serious injury in field hockey, this editorial examines the penalty corner in the sport. Specifically, the potential risk of serious head injury is highlighted, with structural changes that could make the sport safer also discussed.

CONTEXTUALISING THE PROBLEM

A penalty corner is primarily awarded for a defensive infringement in the penalty circle, or for a deliberate infringement within the defensive 23 m area. It provides the attacking team with an opportunity to shoot at goal from a distance of 15 m. While the significance of the penalty corner has increased over time, it has always presented one of the most important scoring opportunities in field hockey.[1]

Initially, the 'hit' was the most prominent penalty corner striking technique. However, owing to safety concerns, the rules of field hockey were revised by the International Hockey Federation in 1987 to state that: '...the first hit at goal must cross the goal-line at a height no greater than 18 inches [a height equivalent to that of the backboard] for a goal to be awarded...'

Following this rule change, many field hockey goalkeepers favoured 'logging' (lying down), in an effort to save low penalty corner hits. This, in turn, encouraged attacking players to explore alternative striking techniques that could be used to increase their chances of scoring—with the 'drag- flick' by far the most prominent technique now in use, particularly among male players.

The drag-flick is used for shooting at goal with speed and precision[2] and is deemed the most effective technique when playing a penalty corner.[3] However, unlike the hit, there is no limitation regarding the maximum ball height when the first shot to score a goal from a penalty corner is a drag-flick. Thus, with a hard plastic ball travelling at velocities in excess of 43 mph,[4] the drag-flick presents a serious injury threat to defending players (in particular) who are positioned behind the goal line in an attempt to block such shots.

Although players may wear protective equipment (eg, face masks) to reduce the risk of eye injury,[5] head trauma remains a very real risk during the penalty corner. Additionally, while face masks represent progress for player safety, the use of such protective equipment is not always mandatory, nor are there comprehensive equipment specifications for manufacturers to follow. Consequently, the quality of this protective equipment is variable; which has implications for injury severity.

Whilst there is a paucity of research on the penalty-corner, a 15-year review of National Collegiate Athletic Association injury surveillance data in women's field hockey found head/neck injuries to account for 25 % of all in-game injuries.[6] Specifically, 81 concussions were reported, as well as 45 fractured noses and 97 face/head/eye/mouth lacerations. Most of these above-

the-neck injuries occurred near the goal or within the 23 m area (69 %) and were caused by contact with the ball or stick (77 %), suggesting the need for additional interventions aimed at injury prevention.

POSSIBLE SOLUTIONS

Former Australia coach and medic, Ric Charlesworth, has been calling for 'power plays' to replace the penalty corner in field hockey for some time. One such power play idea—that was used in the International Super Series Hockey 9s—pits four attackers on the 23 m line against two defenders and a goalkeeper, with attackers given 25 s to score (in a wider goal) from open play. Yet, while the need to score more goals through open play is generally accepted, field hockey governance seems reluctant to lose the drag-flick.

Instead, the Hockey India League has opted for a new point-scoring system for the 2016 season, which awards 2 points for every goal scored from open play, compared to 1 point for penalty corner goals; therefore prioritising goals scored from open play over those scored from penalty corners. However, this position may not be progressive enough to eliminate the possible health risks associated with the penalty corner. Indeed, the rationale for changing the regulations relating to hitting the ball would seem to have come full circle, with the drag- flick now posing major risks to participants.

CONCLUSION

The IOC and international sports federations need to balance the excitement of sport with the risk that is inevitable in these events.[7] Additional research on the injury risks associated with the field hockey penalty corner, as well as the efficacy of interventions aimed at reducing such risk, is also clearly needed. However, the current lack-of-data does not necessarily mean a lack-of-risk. Indeed, the present formulation of the penalty corner—and the drag- flick specifically—would seem to pose a very real risk of serious injury (e.g., head trauma) to players. Therefore, as a pre-emptive measure, this editorial calls for the International Hockey Federation to consider removing the penalty corner from field hockey. Instead, defensive infringements in the penalty circle or deliberate infringements within the defensive 23 m area could be penalised with power plays, such as those currently in use in the International Super Series Hockey 9s.

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