

## **Did Rules and Regulations Aimed at Reducing Head Contact in Ice Hockey Change the Risk of Concussion and Injury in Youth Hockey Players in Alberta?**

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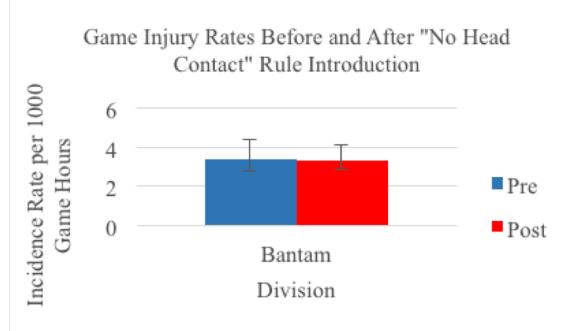
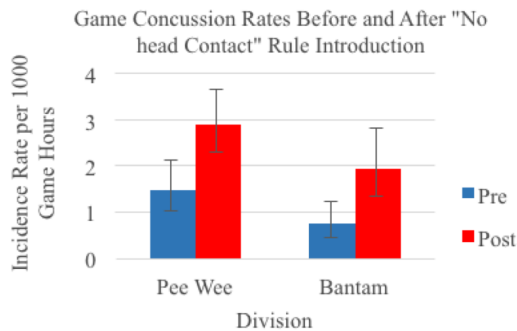
### **Introduction**

Ice hockey is a popular winter sport in Canada, with over 600,000 youth players registered in Hockey Canada [1]. Among high participation and high injury rates, concussion has become a significant public concern, accounting for the greatest proportion (>25%) of all injuries in youth ice hockey [2,3]. In an effort to make the game safer to play, a recent policy change implemented by Hockey Canada introduced a new zero-tolerance head contact rule (Rule 6.5) at the beginning of the 2011-2012 hockey season aimed to reduce the number of head contact injuries (i.e. concussion) that occur with the sport in youth ice hockey [4].

A thorough assessment is needed to examine the effects and desired outcomes of policy changes in sport [5]. The objective of this study is to determine if the risk of concussion and other injury significantly differ for Pee Wee (ages 11-12) and Bantam (ages 13-14) players following the 2011 rule enforcement policy change "zero tolerance for head contact or head checks" compared to players in similar divisions prior to the rule enforcement change.

### **Methods**

This is an historical cohort study. Player recruitment included 588 Pee Wee (Divisions 1-7, ages 11-12) and 244 Bantam (Divisions AAA, AA, ages 13-14) ice hockey players in Alberta in the 2011/12 season. Data from historical cohorts included 891 Pee Wee players (Divisions 1-7) in the 2007/08 season and 378 Bantam players (Divisions AAA, AA) in the 2008/09 season. Previously validated prospective injury surveillance methodology was used across all study years [2]. Injury definition included any game related injury resulting in the inability to complete a session, miss a subsequent session, and/or required medical attention. All players with a suspected concussion were referred to the study sport medicine physician for evaluation and confirmation of diagnosis. Incidence Rate Ratios (IRRs) were estimated based on multivariate Poisson Regression analysis controlling for clustering by team and other important covariates (e.g. year of play, level of play, player position, and previous injury/concussion) and offset by game exposure hours.



## Results

The risk of game concussion increased in both age cohorts in the season following the 2011 rule enforcement policy change "zero tolerance for head contact or head checks" compared to players in similar divisions prior to the rule enforcement change (Pee Wee concussion IRR = 1.89 [95% CI; 1.20-2.97] and Bantam concussion IRR = 2.29 [95% CI; 1.05-5.01]). The risk of other injury (excluding concussion) did not change in the Bantam level (Bantam other injury IRR = 1.03 [95% CI; 0.64-2.87]).

<http://www.hockeycanada.ca/en-ca/news/2011-GN-018-en>. Accessed May 6th, 2013

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## Discussion and Conclusions

The zero tolerance for head contact or head checks rule did not reduce the risk of game related concussion in Pee Wee or Bantam ice hockey players. It is possible however that concussion referral bias related to a greater awareness of concussions in youth ice hockey affected this result despite consistent injury surveillance methodology. Other injury rates were unaffected by the new rule. Further investigation examining referee enforcement of head contact rule change is warranted.

## References

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