

# **Hockey Calgary**

## **Body Checking Sub-Committee**

Prepared for:



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Prepared by:

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March 1, 2012

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### **Introduction:**

At Hockey Calgary's 2011 Annual General Meeting, held on June 18, 2011, a motion was made and subsequently carried to establish a sub-committee to review body checking and injuries in Pee Wee and Community Hockey in Calgary. Attached Appendix "A" is a copy of the official motion. This report is the result of the sub-committee's activities in reviewing information, discussing and forming recommendations.

### **Background:**

Hockey Calgary polled all Associations looking for volunteers that would provide positive contributions to the review and discussion of relevant information and development of subsequent recommendations with respect to safety and body checking in all levels of hockey where body checking is currently allowed. On the cut-off date of September 16, 2011 Hockey Calgary received the names of those interested and a sub-committee consisting of ten (10) volunteers representing eight (8) associations plus the chairperson from Hockey Calgary was formed.

The first meeting was held Wednesday, September 28, 2011. The sub-committee met fourteen (14) times from September 28, 2011 through to March 1, 2012. Although it was difficult for everyone to attend every meeting there was a core of people attending 90% of the meetings in person or via skype. One member did not attend the meetings, so in the end the sub-committee consisted of nine (9) members from seven (7) associations and the chairperson from Hockey Calgary. Members are listed in Appendix "B".

Terms of reference were developed that outlined the "object" of this sub-committee as:

The committee will gather and review current and relevant reports and papers available from associations and professionals with respect to body checking, injuries, coaching techniques, and player development. The committee will then form recommendations for presentation to the Board of Directors on March 12, 2012 (revised March 5, 2012) with respect to player safety, development and coaching development. The recommendations will focus on injury reduction associated with potential continued inclusion or removal of body checking in Community or Pee Wee hockey.

## **Sub Committee Process:**

Over the course of the scheduled meetings, the sub-committee gathered and summarized information related to the topic of injuries, safety and body checking in minor hockey. For the purpose of this sub-committee the following terms were defined:

1. Injury: An on ice event that results in limited participation at/or missing the next ice time and/or medical attention (physician visit, emergency medical treatment, hospital visit)
2. Body Checking: An attempt by a player to gain an advantage on the opponent with the use of the body. Checking results when two opposing players collide while skating in opposite directions or when positioning and angling allow the checker to use the force of the body to gain the advantage. (Canadian Hockey Association, 2002)
3. Body Contact: Incidental contact of two opposing players in pursuit of the puck or position on the ice in the same direction. Body contact occurs as a result of movement by the offensive player. (Canadian Hockey Association, 2002)
4. Development: Improvement of skill, knowledge or attitude over time. Could apply to coaches, players and parents.
5. Player Safety: refers generally to the physical and mental wellbeing of players. For the purposes of this sub-committee's work, the focus is on physical wellbeing of the player. In other words, a reduction in injuries would indicate an improvement in player safety.

The information collected by this sub-committee took a variety of forms including

1. Review of relevant scientific, peer reviewed literature
2. Review of commentary and opinion documents
3. Presentations from a variety of guests to the sub-committee members
  - a. Dr. Carolyn Emery, University of Calgary; November 24, 2011
  - b. Mr. Paul Carson, Hockey Canada, November 24, 2011
  - c. Ms. Kris Katsaounis, Elite Hockey Council, Calgary; December 8, 2011
  - d. Mr. Michael Tebbutt, Rec Hockey Calgary President; December 8, 2011
4. Implementation of a Hockey Calgary membership survey
5. Considerable discussion

## **Summary of Information Gathered:**

### **Literature Review**

The topic of body checking in minor hockey generally leads to passionate debate and a multitude of varied opinions and thoughts. Recent increased attention to the incidence and severity of concussion injuries, just one of the types of injury that may occur when playing a collision sport such as hockey, has generated a number of well designed and peer reviewed studies that are helping to provide insight into injury risks in sport. Review of scientific literature is necessary to move the discussion beyond individual opinion or experience. Scientific

evidence also helps to provide a broader view of the topic and aid in addressing specific questions and possibly dispelling some long-held, pre-conceived notions that have long been held when it comes to thinking about hockey injuries and body checking.

### ***National Context***

Hockey Canada has undergone several revisions and changes to its policy with respect to the appropriate age to introduce body checking in minor hockey. Currently, body checking is not permitted in Pee Wee level hockey in Quebec with body checking introduced at Bantam age. In Ontario, the Ontario Minor Hockey Association and the Ontario Hockey Federation have established that “for the 2011-2012 season, body checking is removed from all age divisions of House league and House league select hockey” (OMHA, 2011). It was stated that the impetus for this change was to “make the game safer, more enjoyable, and thus keep kids involved in the sport longer” (Lee, 2011). Various jurisdictions in the province of British Columbia have also removed body checking from their recreational (or “C”) leagues. In addition, the Pacific Coast Amateur Hockey Association has recently put forth a resolution for discussion at the BC Hockey’s June annual meeting that would eliminate body checking at the Pee Wee A level. “Concerns about hockey injuries, in particular head injuries and concussions” prompted this proposal (PCAHA, 2012). Finally, Hockey USA voted to remove body checking from game situations at the Pee Wee level starting the 2011-2012 season, but supports the teaching of body checking in practices at this age level. The approach of USA Hockey is more in line with the American Academy of Pediatrics recommendation that body checking in hockey be limited to players 15 years of age or older (American Academy of Pediatrics, 2000).

### ***Link between Body Checking and Injury***

For the purposes of this sub-committee, it was necessary to first establish the role of body checking in hockey injuries in minor hockey players. In reviewing a variety of studies, it is clear that **legal body checking is the single most consistent risk factor for injury to minor hockey players** (Johnson, 2011; Emery & Hagel et al., 2010; McPherson, Rothman & Howard, 2006, Willer et al., 2005, American Academy of Pediatrics, 2000). Estimates from a variety of articles indicate that **body checking is associated with between 45-86% of injuries in minor hockey** (Willer et al., 2005).

It is important to understand that it is body checking itself, rather than the age and size of the player (i.e., Pee Wee age and above in Alberta), that is the mechanism accounting for the bulk of injuries (McPherson, Rothman & Howard, 2006; Hagel & Marko, et. al., 2006; American Academy of Pediatrics, 2000). To illustrate this, well designed studies have compared players of the same age and level of play who play in leagues with differing policies related to body checking. In Quebec, body checking is not allowed in Pee Wee minor hockey, whereas in Alberta, body checking is allowed at the Pee Wee level. One such study demonstrated more

than a **3 fold increased rate of injury for the Alberta Pee Wee minor hockey players when compared with their Quebec counterparts** in age and skill (Emery & Kang et al., 2010).

Other combined estimates (of up to 10 different studies) of increased rate of injury in body checking leagues versus non-body checking leagues demonstrate a combined risk ratio of 2.45 (Emery & Hagel et al., 2010, Warsh et al., 2009). In other words, **there are 245% more injuries in body checking leagues than non-body checking leagues**. In addition, it has also been shown that in leagues that allow body checking at the Pee Wee level, there is a 2 fold increase in injuries related to “intentional contact” or other contacts between players that would qualify for penalty calls (elbowing, slashing, tripping, cross checking, and roughing) when compared to leagues that do not allow body checking (Emery & Kang et al., 2010). It appears that allowing body checking at this level leads to a more aggressive style of play, the consequences of which may be additional injuries, even injuries not related to body checking per se. **Clearly body checking increases the rate of injuries (McPherson, Rothman & Howard, 2006), both directly and indirectly, in minor hockey players.**

It has been posited that learning to body check at a younger age might somehow protect players from injuries related to body checking at older ages. The literature, however, does not support this (McPherson, Rothman & Howard, 2006). A further comparison between Bantam minor hockey players from Quebec (no previous body checking experience) and Alberta (2 years of body checking experience) revealed a similar rate of injury in both groups in their first year of Bantam (Emery and Kang et al., 2011; McLaughlin, 2011). In addition, the rates of injury for the Bantam players in Quebec were similar to those of the Alberta players in their first year of body checking, suggesting that **regardless of when body checking is introduced there will be a spike in injuries sustained**. In a breakdown of injuries sustained, there was no difference between the groups in terms of concussions, severe injury or severe concussions. Contrary to common misconceptions, **introducing body checking at an older age (Bantam) when players are larger, faster, and size discrepancies may be greater does not result in significantly increased rates of injury nor does it result in more severe injury.**

### ***Types of Injuries associated with Body Checking***

It is important to be clear on the types of injuries sustained by minor hockey players who are exposed to body checking. In the study comparing Pee Wee aged players in Quebec (non-body checking) and Alberta (body checking), the **Alberta players were at a 3 fold greater risk for all types of injuries measured including overall injury, concussion (less than 10 days lost), severe injury (7 or more days lost due to injury) and severe concussion (10 or more days lost due to injury)**. The greatest difference in injury rates between the provinces related to fractures and concussions. This same pattern of type of injury was also noted in a study comparing Ontario (body checking league) to Quebec (non body checking league) players, with head injuries and fractures more common in body checking leagues (McPherson, Rothman & Howard, 2006). In other words, **there are significantly more fractures and concussions sustained by minor hockey players exposed to body checking at the Pee Wee level when**

**compared to those who are not exposed** (McPherson, Rothman & Howard, 2006). A combined estimate of the increased risk of severe injury (defined as fractures, concussions, injury requiring hospitalization or emergency medical attention) related to body checking was 1.7 (ranging from 1.2-11.7) (Emery and Hagel et al. 2010). **Body checking is a major source of serious injury in hockey players** (Johnson, 2011).

Given the clear association between body checking and concussions, further research was done in this area. Concussions are a relatively frequent childhood injury in Canada. The Canadian Pediatric Society indicates that sport related head injuries account for approximately 18.2% of all serious head injuries in children under 10 years of age; 53.4% in 10-14 year olds, and 42.9% in 15-19 year olds, with the majority of sport-related head injuries occurring in individuals under the age of 20 years (Canadian Pediatric Society, 2006). Despite these numbers there is still strong speculation that many sport-related concussions are overlooked due to under-reporting by young athletes (Johnson, 2011) and insufficient education by the adults supervising their play (coaches, parents).

With respect to particular types of injuries, research indicates that **young athletes' brains are more susceptible to concussion (Stuart, 2011, Aubrey, 2010), and that injured pediatric brains respond less well to healing and may be more vulnerable to diffuse injury** (Kirkwood, 2006). In addition, **previous concussion is a significant risk factor for future concussion and such athletes that have sustained a concussion are 3-6 times more likely to suffer a further concussion** (Johnson, 2011; Barlow, 2011; Emery and Kang 2011, Canadian Pediatric Society, 2006, Kirkwood et al., 2005). There is also evidence that **multiple concussions can have a cumulative, detrimental effect on the brain leading to the potential of long term damage** (Cusimano, 2011; Johnson, 2011; Stuart, 2011; Aubry, 2010). Many physicians are advising athletes who sustain 3 or more concussions in one sport to discontinue participation in that sport or modify their play such that their risk is reduced (flag football versus tackle football, non-body checking hockey versus body checking hockey).

### ***Return-to-Play***

The decision to return an athlete to play following a concussion is a complex decision that should be made by a professional with the appropriate training. To make this decision, it is essential to have a clear, objective record of player symptoms (McCrorry, 2009). Ideally, a current symptom profile is compared to a baseline profile for that athlete. In addition, the incidence of under reporting of symptoms is speculated to be high for many reasons and therefore, relying on self-reports may not be an effective way to make the decision to return to play with confidence (Johnson, 2011; Halstead & Walter, 2010; Canadian Pediatric Society, 2006). Various instruments are available for baseline assessments with young athletes (Sport Concussion Assessment Tool – 2<sup>nd</sup> edition, SCAT-2; ImPACT), although the validity and reliability of these instruments in many cases is still being evaluated in younger children. Although the Zurich guidelines indicate that using the SCAT-2 down to the age of 10 is supported (McCrorry, 2009), validation of the tool with this age group has not been established.

In addition, cost, timing, frequency, and the education of administrators to ensure valid and reliable assessments are also factors to be considered. Current research through the Alberta Children's Hospital and the University of Calgary is examining the question of appropriate tools for younger athletes. Professionals involved in this research are willing to consult with Hockey Calgary regarding the practice of baseline testing.

### ***Skill Development***

The relationship between body checking and hockey player skill development is not yet clear. Some view body checking as simply one more skill necessary to play hockey. It can be argued that although body checking may indeed be a hockey skill, it is not essential given the numbers of individuals who play non-body checking hockey in Canada (many adult recreation leagues, girls/women's hockey, players under Pee Wee age, some Pee Wee level players) and the USA. Few minor hockey players will require the skill of body checking to earn a living professionally or further their education.

Others take the view that the implementation of body checking can negatively impact player development at certain ages. Hockey USA has removed body checking from game situations at the Pee Wee level due to both its impact on player skill development and injury data. Their recommendations include teaching the skill of body checking in practice during the Pee Wee age span but not allowing its use in games until the Bantam age level (McLaughlin, 2011). The rationale for this is that the rate of injuries in practice is much less than in game situations (Stuart, 2011; Emery & Hagel, 2010; Willer, 2005). They also comment that 80% of Hockey USA is already non checking so this change will not be revolutionary (McLaughlin, 2011). It has also been shown that there is no difference in the rate of injuries in practice in jurisdictions that allow body checking versus those that do not (Emery & Kang, 2010). In other words, **practice seems to be a relatively safe location to introduce the skill of body checking to young hockey players**. Other elements of the skill development argument are that in their anticipation of either giving or receiving a body check in hockey, young players are having difficulty splitting their attention between body checking and other hockey related skills (Stuart, 2011), limiting their puck possession time, causing them to forget about the puck, stunting their skill development and reducing their on-ice creativity (Grillo, 2011; DeGregorio, 2011). The Hockey USA model of Long Term Athlete Development indicates that the Pee Wee age level is a prime time for developing hockey skills and that this is compromised by the introduction of body checking in games at that age (McLaughlin, 2011). Hockey USA also comments on the emphasis of body contact in hockey at all levels to encourage players to play with their heads up and to establish the precursor skills to a well delivered or received body check such as positioning, angling, and rubbing (DeGregorio, 2011; Leaf, 2011; Rausch, 2011). A change in attitude around delivering "hits" versus body checks is also needed to encourage players not to lose sight of the game of hockey in their efforts to add body checking to their inventory of hockey skills (Leaf, 2011; Rausch, 2011, Tabrum, 2011).

## ***Federal Landscape***

The significance and severity of injuries in sport is not lost on federal officials across North America. Recently, the Public Health Agency of Canada's "Active and Safe" program announced that it is supporting a joint project of ThinkFirst Canada, the Canadian Centre for Ethics in Sport, the Coaching Association of Canada, and Hockey Canada to help coaches, trainers, parents, and athletes recognize and prevent serious brain injuries. Minister of State for Amateur Sport Bal Gosal noted that an estimated 90 per cent of severe brain injuries are preventable if parents, coaches and the players themselves knew more about the risks. The Public Health Agency of Canada is investing 1.5 million dollars for the prevention of head injuries in team sport for young Canadians. (January 2012; [http://www.phac-aspc.gc.ca/media/nr-rp/2012/2012\\_0119-fs-fi-eng.php](http://www.phac-aspc.gc.ca/media/nr-rp/2012/2012_0119-fs-fi-eng.php)). In addition, congressional hearings have been held in the United States in regards to the subject of the cumulative and long lasting effects of sport-related concussions. Epidemiological research has highlighted the association between sport-related concussions and immediate and long term cognitive impairments, making this a clear public health concern (Science Daily, 2010).

## **Presentations**

Attached Appendix "C" is a summary of Dr. Carolyn Emery's report.

Mr. Paul Carson indicated he was attending the sub-committee meeting as a person interested in the topic of safety and body checking in hockey and was not there to represent Hockey Canada. His take on the topic was that attitudes and rules needed to be changed to protect players.

Ms. Kris Katsaounis from Elite Hockey Calgary expressed the opinion of the Elite Hockey Council that the removal of body checking from Pee Wee level hockey would reduce the competitiveness of Calgary teams relative to other associations at the Elite Bantam level.

Mr. Michael Tebbutt, President of Calgary Rec Hockey Association showed their association registration numbers (see appendix 'C'). Registration data indicates that the primary reason for Pee Wee and Bantam players choosing to register with Rec Hockey reflected the absence of body checking (28% of Pee Wee registrants and 29% of Bantam registrants). At the older ages, registration reflected a desire to play with friends (41% of Midget registrants and 63% of Junior registrants). Rec Hockey has found their model of scheduling 2 consistent ice times per week with no practice sessions to be successful as reflected by their increased numbers each year and does not anticipate supporting any sort of change to that model.



## Membership Survey

A survey designed to better understand the current perceptions and opinions on body checking and injuries in the sport of hockey was prepared by this sub-committee with the assistance of PROVOKE. The survey was open to anyone involved in minor hockey in Calgary following an email invitation and participation instructions sent to each association within Hockey Calgary. In addition, a notice regarding the survey was posted on Hockey Calgary's website. Responses were collected online from January 13-26, 2012.

Results of this survey indicate that the topic of body checking was of strong interest to parents of players currently registered with Hockey Calgary. Of the estimated 13,500 possible respondents in Calgary, 3,805 responses were received, with representation to varying degrees from all minor hockey associations in Calgary. Of this 3,805, 3,609 were parents and caregivers of players currently enrolled in minor hockey programs in Calgary (CURRENT parents). 79 of the 3,805 were parents or caregivers who had players enrolled in minor hockey in the past (LEFT parents). 117 of the 3,805 were individuals involved with minor hockey but who have never personally had children registered in minor hockey in Calgary (board member, coach, officials) (OTHERS). Given the small numbers of participants in the "Left parents" and "Other" groups, the opinions expressed by these groups are viewed by the committee as indicative rather than representative. Although these perspectives will be considered, the focus of this summary will be on the results for the majority of respondents, the "Current parents" group.

Overall, given the rate of response for "Current parents", the survey results are thought to be representative of the overall opinions of parents with players currently enrolled in minor hockey in Calgary. Characteristics of the "Current parent" respondents include that 61.7% were fathers (38.3% were mothers) and 97.4% of the players they referred to were male. 42.5% of these respondents represented Timbits/Novice/Atom (or pre body checking levels); 24.8% represented Pee Wee (or transition body checking level); and 32.8% represented Bantam/Midget (or established body checking levels). 84% of the players discussed were playing in community leagues.

The results of this survey indicate that there is an appetite for change among "Current parents" with regards to body checking in minor hockey (72.5% of respondents). The form of that change was represented by very diverse opinions, many of which were considered by the sub-committee. With regards to safety, it was notable that 50.6% of "Current parents" indicated that "make the game safer" was the number one outcome endorsed if changes to body checking were made. Although body checking does not cause the majority of "Current parents" to actively consider their player's ongoing involvement in hockey, body checking does cause 42.3% to do so. "Current parents" also expressed that in their view, coach education and referees had the greatest effect on safety in hockey. Finally, the number one reported reason why players are involved in minor hockey is to have FUN (91%). Fitness/skill development (85.6%) and the social/team aspect of the game (84.1%) were the second and third most popular reasons for playing hockey consistent with literature reviewed and Calgary Rec Hockey registration data.

Attached Appendix “E” includes the full survey report prepared by PROVOKE.

## **Recommendations Tabled for Discussion:**

The committee was asked for any and all ideas to be tabled for discussion and ultimately voted on. The following is a list of tabled recommendations

1. Visually enhance the “Danger Zone” by painting a light blue zone 3’-5’ from the boards around the entire ice surface.
2. Write a rule where all players must have 2 hands on their stick during all body checking. Rejected due to the difficulties with enforcement and the mechanics of legal body checking.
3. Write a rule where all players must have their stick at waist height or below during all body checking. Rejected due to difficulties establishing a benchmark for height given the size differential among players in addition to enforcement challenges.
4. Write a rule where no body checking is allowed below the goal line on the initial fore check.
5. Create leagues such that players will only play against same aged players, i.e. a minor and a major league. This recommendation was rejected due to the difficulties of supporting this idea in smaller associations; the possibility of limiting the opportunities of a skilled first year player who would benefit from competition and play with older players; and of ensuring sufficient numbers at each age group in all associations to allow like skilled players to play together and compete against other association teams of similar skill.
6. Hockey Calgary needs to gather information to review the impact of any/all changes that are implemented and make any further alterations based on this evaluative information.
7. There needs to be mandatory coach education and certification prior to coaching at age/level of body checking.
8. Hockey Calgary needs to produce guidelines around mandatory injury reporting.
9. Remove body checking until Bantam age in games along with the teaching of body checking skills in practices at the Pee Wee level. Although much of the data reviewed and discussed supports this conclusion, consensus of the sub-committee was not reached on this recommendation and a modification was subsequently put forward.
10. Revise existing body checking leagues from current levels (all Pee Wee age) to some other level (Division) at Pee Wee and up.
11. Baseline testing for all players on body checking teams.

All tabled recommendations were discussed at length. While taking into account all collected data and sub-committee discussions a variety of recommendations were formulated.

## **Conclusions**

It is overwhelmingly clear that:

1. Injuries are inherent to playing sports.
2. Injuries are inherent to playing hockey.
3. There is an increase in rate of injuries associated with the introduction of body checking in hockey.

It was agreed by all that a change in attitude from players, coaches, and parents is necessary to increase respect in the game of hockey. It was also agreed by all that there must be a change in the rules with respect to what age groups and divisions begin body checking in games.

## Recommendations

Following the information gathering and discussion by this sub-committee, the following recommendations are respectfully submitted to Hockey Calgary for their consideration.

- 1. In order to reduce the frequency and severity of injuries suffered by minor hockey players in Calgary it is recommended that the number of players exposed to body checking in game situations be reduced by September 1, 2012.***

There are different ways that this might be accomplished. The following is recommended at this time:

1. Reduce the exposure to body checking in game situations to all but the most skilled and competitive divisions in Calgary Minor Hockey. In other words, eliminate body checking from:
  - a. Pee Wee Divisions 4-10
  - b. Bantam Divisions 3-10
  - c. Midget Divisions 3-10And maintain body checking for:
  - a. Pee Wee Divisions 1-3
  - b. Bantam Divisions 1-2
  - c. Midget Division 1-2

The benefit of this approach includes:

- a reduction in the absolute number of minor hockey players exposed to body checking in game situations thereby reducing the number of injuries sustained.
- continued competitiveness of divisions with players who may have the opportunity to play in provincial championships or who may qualify for play with a Quadrant hockey team either as a regular player or as an affiliate.

The challenges of this approach may include:

- association evaluations and the decision to include body checking or not.
- movements of teams following the completion of the seeding round especially if the movement crosses the boundary from a non body checking team to a body checking team or vice versa.

It will be **necessary to consider the timing and importance of teaching body checking skills** to players who are most likely to be moved up to a body checking team in their second year of play, even if their current team is not otherwise body checking. It may also be necessary to institute this change in a stepwise fashion, depending on the logistics of the change with respect to the Hockey Calgary registration process. If so, it is recommended that this change be initiated with the youngest age group.

## ***II. Mandatory coaching education and certification requirements related to body checking***

1. It is recommended that Hockey Calgary convene a further sub-committee to review the role of coaching and coach education/training and their effect on injuries in minor hockey. This group could also assemble/develop further resources to support skill development with respect to pre-body checking skills and body checking itself. Several of the body checking sub-committee members were willing to assist with this recommendation should it come to pass.
2. It is recommended that coaches teach proper body checking techniques (step 4 of the Body Checking skill progression) in practice situations to all players from Pee Wee level and up. In addition, a focus on pre body checking skills should be emphasized in the divisions below Pee Wee (steps 1-3 of the Body Checking skill progression).
3. It is recommended that Hockey Calgary issue a short manual to all coaches of body checking league teams outlining body checking techniques including checking with two (2) hands on the stick and having the stick below the waist when body checking.
4. It is recommended that Hockey Calgary provide a mandatory coaching certification seminar for body checking skills, required to be obtained, at a minimum, by one coach per team at one age group below that at which body checking is permitted. This is to be obtained by the coach prior to December 31<sup>st</sup>. Each team of body checking category (age and division) is recommended to have a minimum of one coach obtain the body checking certification prior to October 31<sup>st</sup>.
5. Through education, coaches should be encouraged to use proper terminology when referring to body checking with players and refrain from using the term "hitting" to refer to body checking.

## ***III. Rule Changes***

1. Write a rule that indicates no body checking is allowed below the goal line on the initial fore check to reduce the high speed body checks that may otherwise ensue against the end boards.

## ***IV. Baseline testing for all individuals exposed to body checking***

1. The implementation of baseline testing by Hockey Calgary or their designate for all players who are playing in a body checking division is highly recommended.
2. It is recommended that Hockey Calgary liaise with the medical and scientific community to determine the most appropriate tool for use as a baseline, the training required to properly complete this testing and the timing and frequency of this testing with respect to the onset of the season (Dr. Brian Brooks, Neuropsychologist, Alberta Children's Hospital, University of Calgary professionals).
3. Cost will likely be an additional consideration with respect to this recommendation.

## ***V. Arena Modifications***

1. It is recommended that Hockey Calgary consider a visually enhanced “Danger Zone” on arena ice surfaces by painting a light blue zone 3’-5’ from the boards around the entire ice surface.

## ***VI. Further Evaluation***

1. It is recommended that Hockey Calgary develop and implement clear guidelines around mandatory injury reporting and return-to-play for all teams by September 1, 2012.
2. It is highly recommended that any changes made to policy regarding body checking in minor hockey in Calgary be further evaluated to ensure they are achieving the desired results. Based on this information, further alterations may be made in the future. It is advised that Hockey Calgary discuss this recommendation with the University of Calgary to ensure well-designed studies and evaluation of these important changes. Further contributions to the literature base on this topic will provide further support to our own jurisdiction and support other jurisdictions in the making of evidence based decisions.

## ***VII. Provincial Strategy***

1. Finally, given the strength and abundance of the injury data available related to body checking and the Pee Wee age group, it is highly recommended that Hockey Calgary raise this issue with Hockey Alberta. A major barrier to reducing injuries in this age group reflects provincial play and logistics of crossing jurisdictions. Removal of body checking from any single jurisdiction of Hockey Alberta would be challenging. Given the number of jurisdictions evaluating this concern it would be appropriate to review this issue at the provincial level.

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### **Additional Resources Reviewed or Presentations attended**

1. Presentation by Dr. Carolyn Emery to the Body checking sub-committee November 24, 2011
2. Stop Concussions presentation by Kerry Goulet, December 4, 2011. Sponsored by Tuxedo Source for Sports.
3. Concussion Symposium, Canada Olympic Park - Dec 7, 2011  
Dr. K. Brett, Team Physician, Calgary Flames  
Dr. K. Barlow, Neurologist, Alberta Children's Hospital

### **Useful Websites**

[www.thinkfirst.ca](http://www.thinkfirst.ca) Their aim is to prevent brain and spinal cord injury through education aimed at healthy behaviours of children and youth

[www.stopconcussions.com](http://www.stopconcussions.com) This site is an online concussion/neurotrauma educational and awareness hub for all sports, to address the growing trend of concussions in sports (Keith Primeau and Kerry Goulet).

[www.playitcoolhockey.com](http://www.playitcoolhockey.com) Play it cool is a unique intervention program aimed at reducing injuries in minor hockey by helping coaches teaching the game with safety in mind and by raising awareness around concussion and spinal injuries (Keith Primeau)

[www.biac-aclc.ca](http://www.biac-aclc.ca) The mandate of this site is to improve the quality of life for all Canadians affected by acquired brain injury and promote it's prevention

[www.cdc.gov/concussion](http://www.cdc.gov/concussion) This site provides up to date medical facts on concussions.

[www.sportslegacy.org](http://www.sportslegacy.org) This site was founded to solve this concussion crisis in sports and the military through medical research, treatment, and education & prevention.

[www.momsteam.com](http://www.momsteam.com) This site is a resource of sport information for parents

**APPENDIX "A"**  
**List of participating sub-committee members**

## **Body Checking Sub-Committee Participating Members**

### **Chair, Hockey Calgary**

Rick Robertson – Chair, Hockey Calgary

### **Members**

Colin Baustad – Blackfoot

Jay Steele – Midnapore

Sue Makarchuk – Trails West

Kerry Tychonic – Springbank

Callie Dundas – Springbank

Don Henderson – Bow River

Jeff Dowes – Trails West

Kevin Yellowtaga – Bow Valley

Scott Anklewich – Southland

**APPENDIX “B”**  
**2011 Hockey Calgary Annual General Meeting**  
**Notice of Motion**



HOCKEY CALGARY

# 2011 ANNUAL GENERAL MEETING NOTICE OF MOTION

## AMENDMENT TO BYLAWS, RULES and REGULATIONS

**BYLAW/RULE #:** None      **PAGE #**      **PARA#** n/a

**SUBMITTED BY:**

Hockey Calgary

**AUTHORIZED SIGNATURE:**

**Current Wording of Bylaw/Rule:**

None

**Proposed Wording of Motion/Bylaw/Rule:**

The Hockey Calgary Executive Committee is instructed by the membership to establish a sub-committee at the start of the 2011 / 2012 hockey season for the purposes of reviewing the impact of body checking in all levels of hockey where body checking is currently allowed. The sub-committee is to report back to the Board of Directors with recommendations on how to enhance player safety and development with a focus on injury reduction associated with potential continued inclusion or removal of body checking in Community or Peewee hockey.

**Rationale for changing the Bylaw/Rule:**

The sub-committee is expected to review current research and studies that are available on the topic in order to finalize once and for all an association wide position on the sensitive issue of body checking in Peewee hockey. This committee work will present an overall picture of what is happening in other minor hockey jurisdictions across North America.

Sources of information will include but are not limited to the following:

<ul style="list-style-type: none"> <li>• Hockey Canada</li> <li>• Hockey Alberta &amp; other Branches</li> <li>• Hockey USA</li> <li>• IIHF</li> <li>• University Research Studies</li> </ul>	<ul style="list-style-type: none"> <li>• Medical Profession</li> <li>• Parents / Players</li> <li>• Trainers</li> <li>• Members Associations</li> <li>• Other Stakeholders / Experts</li> </ul>
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Withdrawn	Tabled	Carried	Carried (as amended)	Defeated
		<b>X</b>		

**APPENDIX "C"**

**Summary notes from Dr. C. Emery's presentation to the Body  
Checking sub-committee, November 24, 2011**

## **Summary of Dr. Emery's Presentation to the BC Sub-Committee November 24, 2011**

Dr. Emery – epidemiologist and physiotherapist  
Sport Injury Prevention Research Centre – U of C  
Background includes coaching, pediatric orthopedics and the clinical treatment of injuries – became interested in this area from the perspective of injury prevention  
Has collaborated with Dr. B. Hagel at the ACH – another epidemiologist who specializes in ski/snowboarding and cycling injuries – on the systematic review of risk factors for injury in youth ice hockey  
Participated in Ice hockey and concussion summits in 2010 and there will be another one in 2013  
Think First is a government agency that works to educate about concussions  
Health Canada Statistics: Ice hockey injuries represent about 10% of all sports injuries which is similar to emergency room data that shows about 12% of all child injuries are concussions and in ice hockey injuries presenting to the emerg, about 21% are concussions

Concussion rates are calculated as # of concussions/100 player hours (including practice and games) which then allows for comparison that controls for the number of hours

### **Concussion Specific Rates in Alberta (Calgary and Edmonton)**

\*using a validated injury surveillance system

Atom 0.24/1000

Pee Wee 1.47/1000 \*\* top 60% of players

Bantam 0.85/1000 \*\* top 30% of players

Midget 0.82/1000 \*\*top 30% of players

NCAA data indicates a 0.72/1000 rate for players which is similar to the Bantam and Midget numbers

NHL is 1.8/1000 player hours – slightly higher than the Pee Wee numbers

### **Emery 2006 Study**

Injury involved the need for medical attention and time lost from hockey  
Injuries - compared to Atom, across all age groups and all divisions of play

- 3 fold increase risk in Pee Wee
- 4 fold increased risk in Bantam

- 5 fold increased risk in Midget

When you look at Pee Wee specifically – the highest rates of injury are in the PW 1-3 divisions – a 3 fold increased risk of injury compared to Atom

Concussions – compared to Atom

- 3 fold increase risk in Pee Wee
- 4 fold increase in Bantam
- 3 fold increase in Midget

45% of injuries caused by body checking which is a number that is consistent in the literature

17% were caused by other intentional contacts (all “illegal” acts in hockey but very few penalties were called)

14% caused by unintentional contact

\*\*Hockey USA – can have contact hockey at Pee Wee but not checking hockey; but body checking can be taught in practice at Pee Wee level

### ***Systematic Review Research Summary – Meta analysis***

In body checking leagues – 2-4X risk of injury

Older age groups – injury risk increases from atom to midget, Pee Wee has the highest concussion rates

Game session – 2-5X greater risk in game versus practice

Higher levels of play – increased injury risk in more elite level

Weight – increase risk for lowest 25<sup>th</sup> percentile

Relative age – no evidence of differing injury risk including 1<sup>st</sup>, 2<sup>nd</sup> year players

Position of play – conflicting evidence

Gender – unclear – no difference in varsity

Fair play – unclear – some studies have shown no difference in injury rates or number of transgressions

Psychosocial factors (empathy or aggression levels) – unclear

### **JAMA 2010**

Looked at the top 60% of Pee Wee players in Alberta and Quebec

Severe concussion – defined as 10 days time loss

Controlled for known risk factors for concussion in ice hockey – so only variable was body checking

Incidence rate ratios for injury for Alberta versus Quebec

- for all injury (including concussions): 3.26
- for concussions (separated out): 3.88
- for severe concussions: 3.61
- for severe injury: 3.30



- no difference between practice injury rates between the provinces

Participation rates per capita between the two provinces was very similar

Mechanism of injury

- in Alberta 65% of injuries were related to body checking
- in Quebec 14% of injuries were related to body checking

Absolute risk reduction in one season if body checking was removed from Pee Wee hockey:

- eliminate 12 injuries/100 players
- eliminate 3 severe injuries/100 players
- eliminate 5 concussions/100players
- eliminate 1 severe concussion/100 players

In Alberta – if we posit 8826 Pee Wee level hockey players that means

- elimination of 1074 game related injuries
- 412 concussions eliminated
- 274 severe injuries eliminated
- 78 severe concussions eliminated

This study did not include Calgary Rec Hockey players

Other independent risk factors for injury in Pee Wee

- Previous injury – 2 fold great risk of injury
- Low weight (less than 25<sup>th</sup> percentile) – 40% increased risk of injury
- Upper level of play (top 20%) – 46% increase risk of injury
- Previous concussion at anytime (not jus tin last year) – 2 fold greater risk of a future concussion

### **CMAJ 2010**

Upper 30% of players in Alberta compared to Quebec

- don't forget that 2<sup>nd</sup> year Bantam players in Quebec have one year of body checking experience

Bantam injury rates/province

- risk of all injury 0.85
- risk of concussion 0.84
- risk of severe injury 0.67 \*\*\*
- risk of severe concussion 0.60

Only the risk of severe injury was significant and unlikely to occur by chance suggesting a 33% greater risk of severe injury in Bantam players in Quebec – what is not known is to what extent this is an artefact of a survival effect – ie – the Pee Wee player sin Alberta who had difficulty with body checking or injury may have opted out before getting to the Bantam level. In other words, only those players who could handle body checking went on to Bantam in Alberta in the first place

Mechanism of injury

- 66% of injuries related to body checking in Alberta
  - 70% of injuries related to body checking in Quebec
- Other independent risk factors in Bantam in both provinces:
- For all injury – previous injury increased risk by 40%
    - first year player increased risk by 40%
    - goalie had a 66% less risk of being injured
  - For concussion- previous concussion increased risk by 87%

Net absolute risk reduction for Pee Wee and Bantam injury rates for Players in the Top 30% only:

Could eliminate 17 injuries/100 players  
                   3 severe injuries/100 players  
                   7 concussions/100 players  
                   0.5 severe concussions/100 players

This shows that the concussion risk in Pee Wee in AB is much HIGHER than Pee Wee in Quebec AND Bantam in AB and Bantam in Quebec

### **BJSM 2011**

Risk Factors for Pee Wee and Bantam

*All injury:*

WLT Record less than 50%: 22% increased risk

Previous Injury: 2 times greater risk

1<sup>st</sup> year players: 24% greater risk

Goalie: 61% smaller risk

*Severe Injury:*

WLT record of less than 50%: 36% greater risk

Previous injury: 2 times greater risk

Goalie: 61% smaller risk

*Concussion:*

Previous concussion: 2 fold greater risk

Penalty minutes: no difference in injuries in high penalty minutes versus low penalty minutes

In other words – associative relationship - the greater the number of injuries, the worse the team performs

Mouth Guards – no difference in concussion risk based on type of mouth guard  
Helmet age: no difference in concussion risk based on helmets up to 3 years old and older than 3 years old  
Type of facial protection: wire cage versus visor – no difference in concussion risk

### ***Take Home Messages:***

1. 3 fold increase risk of injury and 4 fold increased risk of concussion in a body checking league compared to a non body checking league in Pee Wee (14 out of 15 studies) \*\* if you examine Willer's data on Pee Wee alone – it actually shows a greater risk than Emery's study did
2. No significant reduction in the risk of concussion or injury in Bantam when body checking is introduced at Pee Wee
3. 33% reduction in injury of less than 7 days time loss in Bantam alone where body checking is introduced in Pee Wee (survival effect?)
4. Net effect (Pee Wee and Bantam) indicates that delaying body checking till Bantam has clear and measurable benefits
5. Lower rates of injury and injury less than 7 days time loss are associated with a stronger Win/Loss/Tie record
6. Higher team penalties are not associated with higher rates of injury or concussion
7. Risk of concussion does not depend on type of mouth guard, type of facial protection, or helmet age

### ***Recommendations for Policy Change***

Delay body checking until Bantam

Ongoing discussions with policy makers regarding reconsidering policy related to body checking with regards to

- best age to introduce body checking
- progression of body checking skills training
- level of play
- size differential
- player maturity for decision making

October 2010 – Ice Hockey Summit at the Mayo Clinic

Attendees put rule changes, policy and rule enforcement recommendations in priority order:

1. Eliminate head contact at all levels
2. Delay legal age of body checking in games until age 13 (Bantam) and establish progressive checking skill development (\*\* won't comment on complete removal of body checking because it hasn't yet been studied, however, a 7 fold greater

risk of injury has been measured for Bantam and Midget players when compared to Rec Hockey/no checking players at the same level)

3. Eliminate fighting at all levels

### ***What has happened?***

1. USA Hockey Board of Directors – June 2011 voted to delay the introduction of body checking until Bantam and introduced a universal progressive skill progression for its introduction
2. Hockey Canada awaits provincial and local association initiatives for further discussion nationally
3. Ontario Hockey Federation (May 2011) eliminated body checking at all levels of house league and house leagues select play (up to Midget level) and will be evaluating this change this season
4. Head Contact rule was introduced – zero tolerance – also will be evaluating this change

Youth hockey injury rates in Europe?? No comparison groups in Europe to study

### ***Barriers to Change:***

1. Body checking is part of the game
2. Concerns regarding the disadvantage for the development of the elite player? (no evidence that delaying body contact impacts this development negatively)
3. Concern regarding a greater risk of injury in older players starting to check versus younger players (evidence shows that the risk of injury does not increase substantially in older players and the risk of concussion does not increase)
4. Rock 'em, Sock 'em mentality – celebrating big “hits” and fights in hockey culture
5. Parent dreams of the NHL
6. Media – although a media review indicated that media messaging is for the most part on target with the scientific evidence for the most part

Think First – education and concussion awareness advocacy group

But EDUCATION DOES NOT PREVENT INJURIES it just increase our ability to identify concussions and perhaps to reduce second impact problems but we are not preventing initial concussions through education alone \*\* this is a common finding in injury reduction research that finds if you need to reduce injuries you must do more than educate – you must change ACTIONS

Public Health Policy

Health of children in Canada has a focus on injury and specifically head injuries at the federal level along with obesity  
Also on the provincial government agenda  
Emery's focus is on primary prevention of injuries

**APPENDIX “D”**

**Registration data from Calgary Rec Hockey for the 2011-2012 season**

**Calgary REC Hockey  
Reasons for Playing REC / 2011 Registration Results**

	Cost	Fun League	Less Time Commitment	No Body Checking	Play With Friends	Set Game Schedule	Sportsmanship	Want To Try Hockey	Total
Pee Wee	0	26	15	37	21	17	1	15	132
Rank	8	2	5	1	3	4	7	5	
%	NA	19.70%	11.36%	28.03%	15.91%	12.88%	0.76%	11.36%	100.00%
Bantam	0	41	20	56	53	14	2	6	192
Rank	8	3	4	1	2	5	7	6	
%	NA	21.35%	10.42%	29.17%	27.60%	7.29%	1.04%	3.13%	100.00%
Midget	3	54	40	27	113	29	2	2	270
Rank	8	2	3	5	1	4	6	6	
%	1.11%	20.00%	14.81%	10.00%	41.85%	10.74%	0.74%	0.74%	100.00%
Junior	0	42	12	4	147	23	2	1	231
Rank	8	2	4	5	1	3	6	7	
%	NA	18.18%	5.19%	1.73%	63.64%	9.96%	0.87%	0.43%	100.00%
Total	3	163	87	124	334	83	7	24	825
Rank	8	2	4	3	1	5	7	6	
%	0.38%	19.76%	10.56%	15.03%	40.48%	10.06%	0.85%	2.91%	100.00%