Ringette Canada
Concussion Management Guidelines

Context:

Canadians have a heightened awareness of concussions due to the many high profile athletes who have incurred concussions, the increased media coverage relating to brain injury, and our increased understanding of the consequences of repetitive brain trauma, primarily within professional sports. From this heightened awareness, we know that concussions are very possible within the sport of Ringette.

Definitions:

- **Concussion:** An alteration in thinking and behaving as a result of a direct or indirect blow to the head or an impact to the body that causes a sudden severe movement to the head. With a concussion, there is no visible injury to the structure of the brain, meaning that tests like an MRI or a CT scan usually appear normal.[1]

- **CSA certified:** This means the equipment has been tested using process laid out in the Standard developed by the CSA for that specific piece of equipment and meets its requirements.

- **Participant:** Individuals associated with Ringette Canada activities including but not limited to coaches, athletes, volunteers, and officials.

Purpose:

Ringette Canada believes that everyone involved with Ringette Canada should take all necessary precautionary steps to prevent and reduce brain injuries, inform themselves as to the signs and symptoms of a concussion, and take accountability around their role in the prevention, identification, and return to health of a Participant suffering from a brain injury.

Accompanying Ringette Canada's *Concussion Policy*, these *Concussion Management Guidelines* provide guidance in identifying signs and symptoms of a concussion, the suggested responsibilities of coaches and other team staff, return to play guidelines, and the reporting mechanisms for instances of possible concussions.

These guidelines are consistent with the Canadian Guideline on Concussion in Sport (Parachute, 2017).

Scope:

The *Concussion Policy* addresses the identification and management of a suspected or confirmed concussion, as well as the protocol for Return to Play for any Participant associated within Ringette Canada activities. Ringette Canada is not responsible for diagnosing concussions – this can only be done by a medical doctor or nurse practitioner – but Ringette Canada can contribute to the immediate

[1] Parachute website: http://www.parachutecanada.org/injury-topics/topic/C9

identification and management of concussions. Return to Play procedures for Participants suffering from a confirmed concussion should be guided by the health care professional in charge of treatment.

Awareness:

Everyone on the ice surface is at risk of suffering a concussion.

- Players
- Coaches and Team Staff
- On-ice officials

It is important to note that:

- Individuals with a previous history of concussion are at a higher risk of concussion[2] and take a longer time to recover[3]
- Females are at higher risk of concussion[4]

Dangers:

Failure to recognise and report concussion symptoms or returning to activity with ongoing concussion symptoms sets the stage for:

- **Cumulative concussive injury**
  Data suggests that the concussed brain goes through a period of heightened susceptibility to a second injury.[5]

- **Second Impact Syndrome**
  Second Impact Syndrome is a rare occurrence and occurs when an athlete sustains a brain injury (concussion or worse) and while still experiencing symptoms (not fully recovered) sustains a second brain injury, which is associated with brain swelling and permanent brain injury or death.[6]

Recurrent brain injury is currently implicated in the development of Chronic Traumatic Encephalopathy (CTE). CTE is a progressive degenerative brain disease seen in people with a history of brain trauma. For athletes, the brain trauma has been repetitive. Symptoms include difficulty thinking, explosive and aggressive behaviour, mood disorder, and movement disorder (Parkinsonism). Presently, CTE can only be diagnosed pathologically.[7]

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[2] Zemper ED. Two-year prospective study of relative risk of a second cerebral concussion. Am J Phys Med Rehabil. 2003;82 (9):653–9.
[3] Eisenberg MA, Andrea J, Meehan W, Mannix R. Time interval between concussions and symptom duration. Pediatrics. 2013;132(1):8-17.
[4] Abrahams S, Fie SM, Patricios J, Posthumus M, September AV. Risk factors for sports concussion: an evidence-based systematic review. Br J Sports Med. 2014;48(2):91-7.
[5] Giza CC, Hovda DA. The new neurometabolic cascade of concussion. Neurosurgery. 2014;75 Suppl 4:S24-33.
[6] Cantu RC. Second-impact syndrome. Clin Sports Med. 1998;17(1):37-44.
[7] Mez J, Stern RA, **McKee** AC. Chronic traumatic encephalopathy: where are we and where are we going? Curr Neurol Neurosci Rep. 2013 Dec;13(12):407.

Education:

Ringette Canada strongly recommends that all athletes, coaches, officials, and parents maintain an updated education of concussion awareness and management.

Annual concussion education is strongly recommended for all stakeholders.

Annual concussion education should include information on:

- the definition of concussion,
- possible mechanisms of injury,
- common signs and symptoms,
- steps that can be taken to prevent concussions and other injuries from occurring in sport,
- what to do when an athlete has suffered a suspected concussion or more serious head injury,
- what measures should be taken to ensure proper medical assessment,
- Return-to-School and Return-to-Sport Strategies, and
- Return to sport medical clearance requirements

It is strongly recommended that parents and athletes review and submit a signed copy of the Pre-season Concussion Education Sheet to their coach prior to the first practice of the season. In addition, we encourage our stakeholders to read and review the Ringette Canada Concussion policy as well as these Management Guidelines.

This can be accomplished through a pre-season in-person orientation sessions for participants.

Ringette Canada is currently considering mechanisms for making concussion awareness training *mandatory* for certain Ringette Canada stakeholders.

Particularly, NCCP-certified coaches can expect to soon be required to complete the CAC Making Head Way e-module. Coaches will receive professional development points towards the maintenance of their coaching certification for completing this e-module.

Examples of online Concussion education tools:

- Concussion Awareness Training Tool
  Web-based tools, resources, 30-minute online course (for parents, athletes, and coaches)
  http://www.cattonline.com/

- Oregon Center for Applied Science Concussion Education Video
  Simplified short four-minute video (primarily for youth athletes)
  http://brain101.orcasinc.com/5000/

- Coaching Association of Canada (CAC) Making Head Way
  E-Learning module (primarily for NCCP-certified coaches)
  http://coach.ca/making-head-way-concussion-elearning-series-p153487

- Parachute Canada
  E-learning modules for parents and players
  https://elearning.parachutecanada.org/courses

Equipment:

Wearing the proper equipment can help prevent concussions.

- **Players, coaches and on-ice officials**
  All individuals who are required to wear helmets on the ice are expected to wear CSA-certified, properly fitted, and well-maintained equipment. A proper functioning helmet will help reduce the risks of serious head injury. Helmets should be examined twice a year for any cracks, loose screws or other breaks that may reduce the effectiveness of the helmet. Helmets that are not CSA-certified, are ill-fitting, or are in any manner altered (including certain types of adhesive from stickers/decals) or broken should never be worn.

- **Other individuals**
  Anyone going on the ice without skates should be wearing a footwear traction device[8] to help prevent injury.

[8] Arbeau R, Gordon KE. McCurdy G. Mayhem on the ice – Are team officials being injured as a result of their players being injured? Can Fam Physician 2007; 53: 1488-92.

Diagnosis:

Concussions are to be formally assessed by health care professionals within their scope of practice and expertise – not by coaches, trainers, team staff, or any other individual associated with Ringette Canada.

If a Participant is showing signs of concussion and/or has been clinically assessed as concussed, the coach, administrator and/or supervisor of that Participant will prevent the Participant from participating until the required medical clearance has been provided.

Participants with a suspected concussion must be seen by a physician before returning to play and must follow the Return to Play instructions as outlined in these *Concussion Management Guidelines*.

Reporting:

Although the formal diagnosis of concussion should be made following a medical assessment, all stakeholders are responsible for the recognition and reporting of Participants who may demonstrate visual signs of a head injury or who report concussion-related symptoms.

For children or adolescents with suspected concussion not directly transferred for medical management to their parents, the coaches must communicate their concerns with the child or adolescent's parent(s) or guardian(s).

It is the responsibility of the individual with a suspected or confirmed concussion or her parents to communicate the player's status to the team staff.

It is the responsibility of the players to communicate to their team staff if a teammate is injured with a suspected concussion.

Concussion Incidence and Response

Incident:

A concussion should be suspected:

- in any Participant who sustains a significant impact to the head, face, neck, or body and demonstrates *ANY* of the visual signs of a suspected concussion or reports *ANY* symptoms of a suspected concussion as detailed in the Concussion Recognition Tool 5.
- if a player reports ANY concussion symptoms to one of their peers, parents, teachers, or coaches or if anyone witnesses a Participant exhibiting any of the visual signs of concussion.

In some cases, a Participant may demonstrate signs or symptoms of a more severe head or spine injury including convulsions, worsening headaches, vomiting or neck pain. If a Participant demonstrates any of the 'Red Flags' indicated by the Concussion Recognition Tool 5, a more severe head or spine injury should be suspected, and an Emergency Medical Assessment should occur.

Know the signs and Symptoms of a Concussion:

THINKING/ REMEMBERING	PHYSICAL	EMOTIONAL/ MOOD	SLEEP DISTURBANCE
• Difficulty thinking clearly • Feeling slowed down • Difficulty concentrating • Difficulty remembering new information	• Headache • Nausea or vomiting (early on) • Balance problems • Dizziness • Fuzzy or blurry vision • Feeling tired, having no energy • Sensitivity to noise or light	• Irritability • Sadness • More emotional • Nervousness or anxiety	• Sleeping more than usual • Sleeping less than usual • Trouble falling asleep

Figure 1 - Concussion Symptoms

Consult the Concussion Recognition Tool 5 for signs, symptoms and questions to be used in the identification of a Participant with suspected concussion.

At any time when answering these questions: If in doubt, sit them out.

"It's better to miss one game than the whole season."

- U.S. Department of Health and Human Services Centres for Disease Control and Prevention.

Post-incident – First 30 minutes:

A - Emergency Medical Assessment:

If a Participant is suspected to have sustained a severe head or spine injury that requires immediate attention during a game or practice, an ambulance should be called immediately to transfer the Participant to the nearest emergency department for further Medical Assessment.

If the Participant is unconscious – initiate the emergency action plan (see **Concussion Emergency Action Plan** template), call 911, and then:

a) In the case of youth (under the age of majority), contact the Participant's parent/guardian to inform them of the injury and that the Participant will be attended to by Emergency Medical Services and possibly transported to a hospital. For Participants over 18 years of age, their emergency contact person should be contacted if one has been provided.
b) Identify someone to stay with the Participant until Emergency Medical Services arrives
c) Monitor and document any physical, emotional and/or cognitive changes
d) Coaches, parents, teachers, trainers and officials should not make any effort to remove equipment or move the Participant until an ambulance has arrived.

B – Sideline Medical Assessment:

If the Participant is conscious – If a Participant is suspected of sustaining a concussion and there is no concern for a more serious head or spine injury, the Participant should be immediately removed from the field of play and then:

a) Notify the Participant's parent/guardian (if applicable)
b) Arrange a ride home for the Participant
c) Isolate the Participant in a dark room or area
d) Reduce external stimulus (noise, other people, etc.)
e) Remain with the Participant until he or she can be taken home
f) Monitor and document any physical, emotional and/or cognitive changes
g) Encourage the Participant to consult a physician

Please follow one of the following processes, depending on whether a qualified licensed healthcare professional is present on site:

If a licensed healthcare professional is present:

- Bring the Participant to a quiet area
- Complete a Sideline Medical Assessment using the Sport Concussion Assessment Tool 5 (SCAT5) or the Child SCAT5.

To note:
The SCAT5 and Child SCAT5 are clinical tools that should only be used by a licensed healthcare professional that has experience using these tools.

It is important to note that the results of SCAT5 and Child SCAT5 testing can be normal in the setting of acute concussion and therefore, should not be used to make sideline return-to-sport decisions in youth Participants.

Any youth Participant who is suspected of having sustained a concussion must not return to the game or practice and must be referred for Medical Assessment.

If a youth Participant is removed from play following a significant impact and has undergone assessment by a licensed healthcare professional, but there are NO visual signs of a concussion and the Participant reports NO concussion symptoms, then the Participant can be returned to play but should be monitored for delayed symptoms.

In the case of Participants over the age of majority, a certified athletic therapist, physiotherapist, physician assistant or medical doctor providing medical coverage for the sporting event may make the determination that a concussion has not occurred based on the results of the Sideline Medical Assessment. In these cases, the Participant may be returned to the practice or game without a *Medical Clearance Letter* but this should be clearly communicated to the coaching staff. Players that have been cleared to return to games or practices should be monitored for delayed symptoms. If the Participant develops any delayed symptoms the Participant should be removed from play and undergo medical assessment by a medical doctor or nurse practitioner.

If there is no licensed healthcare professional present
The Participant should be referred immediately for medical assessment by a medical doctor, physician assistant or nurse practitioner, and the Participant is not permitted to return to play until receiving medical clearance.

Once the Participant has been seen by Emergency Medical Services and/or taken home, a **Concussion Incident Report Form** is to be completed and submitted to Ringette Canada.

Following the identification of a possible concussion and regardless if the Participant is conscious, an individual (team staff, coach, trainer, etc.) ideally with first aid knowledge and training must remain with the Participant to observe for any signs of deterioration. Any potentially-concussed Participant not immediately transported to hospital should be observed closely for any deterioration for at least 30 minutes. Someone must remain with the Participant until either medical personnel arrive (if required) or until a parent/guardian accepts responsibility for the Participant's safety and well-being.

Post-Incident – First 24 to 48 hours:

Problems can still arise over the course of the first 24 to 48 hours. The Participant should be brought to hospital as soon as possible if one or more of the following symptoms appear:

- Neck pain or tenderness
- Double vision
- Weakness or tingling/burning in arms or legs
- Fever or increasing headache

- Seizure or convulsion
- Loss of consciousness
- Deteriorating conscious state
- Vomiting
- Increasingly restless, agitated or combative

Returning to Play:

Symptoms of concussion may develop over time following a brain injury.[9] The Participant with a suspected concussion must consult a medical doctor or nurse practitioner before returning to play.

The Participant and the Participant's parent/guardian (if applicable) should be directed to the following guidelines:

a) If no concussion is diagnosed by a physician: the Participant may return to physical activities accompanied by a Medical Assessment Letter confirming that the Participant has not been diagnosed with a concussion and can resume full participation.
b) If a concussion is diagnosed by a physician: the Participant can only gradually return to physical activities by following the steps outlined in the chart below and/or as directed by a physician.
c) The Participant should be monitored regularly for the return of any signs and/or symptoms of concussion. If signs and/or symptoms return, the Participant must consult with a physician.
d) Return to Play Strategy:
    a. Each stage must take a minimum of 24 hours and the length of time needed to complete each stage will vary based on the severity of the concussion.
    b. Move forward to the next stage when activities are tolerated without new or worsening symptoms.
    c. If symptoms reappear, return to the previous stage for at least 24 hours.
    d. Student must have returned to school or full studies at their pre-injury level of performance, and adults must have returned to their normal education or work, before proceeding to Stages 5 and 6.

Stage	Aim	Activity	Stage Goal
0	Rest	24-48 hours of physical and cognitive rest	Rest
Proceed to step 1 only when symptoms are gone.			
1	Symptom-limiting activity	• Daily activities that do not provoke symptoms. • Monitor for symptoms and signs.	Gradual re-introduction of work/school activities
2	Light aerobic	• Walking or stationary cycling at slow to	Increase heart rate

[9] Lovell MR, Collins MW, Iverson GL, Johnston KM, Bradley JP. Grade 1 or "ding" concussions in high school athletes. Am J Sports Med. 2004 Jan-Feb;32(1):47-54.

	activity	medium pace • ***No resistance training*** • Light intensity jogging or stationary cycling for 15-20 minutes at sub-symptom threshold intensity	
3	Sport-specific exercise	• Training activities such as skating drills. • ***No head impact activities or resistance training.*** • Moderate intensity jogging for 30-60 minutes • Low to moderate impact passing and shooting drills	Add movement
4	Non-contact training drills	• Harder training drills without contact with teammates. • May start progressive resistance training	Exercise, coordination and increased thinking
Repeat medical assessment and clearance with second Concussion Assessment Medical Report Form			
5	Full contact practice	• Medical clearance required prior to engaging in full contact activity • Participation in full practice without activity restriction	Restore confidence and assess functional skills by coaching staff
6	Return to sport	Normal game play	

Once the Participant has been given medical clearance, the coach, administrator and/or supervisor will be required to forward a copy of the Concussion Assessment Medical Report Form to Ringette Canada for retention.

Persistent Symptoms
Most Participants who sustain a concussion will recover within 1-4 weeks. However, some Participants might experience symptoms that persist beyond this period.

- Adults: symptoms are persistent if they last longer than 2 weeks
- Youth: symptoms are persistent if they last longer than 4 weeks

Participants experiencing persistent post-concussion symptoms may benefit from referral to a medically-supervised multidisciplinary concussion clinic that has access to professionals with licensed training in traumatic brain injury.

Roles and Responsibilities:

Team staff:

The team Emergency Action Plan (EAP) should indicate specific responsibilities for team staff regarding an injured player. Teams may wish to add a specific section to their EAP outlining information and actions related to concussive injuries.

The coaching staff of the individual with a suspected concussion should complete a Ringette Canada or PSO insurance provider incident report (ex: BFL) and submit to ringette@ringette.ca.

Direction for head coach:
The Head Coach retains the responsibility to initiate actions related to athletes with potential concussions. The two main responsibilities of the Head Coach include:

1. Enacting the team EAP.
2. Ensuring the timely completion of an injury report form.

The main trigger for the Head Coach to fulfill these responsibilities will be when any athlete suffers an impact during a game resulting in missed playing time due to symptoms indicating potential concussion.

"When in doubt, fill the form out"

When the injury report form is filled out, the following process must be followed:

1. The athlete must be given the Concussion Assessment Medical Report Form and seek medical assessment by a physician to determine whether a concussion has occurred.
2. The player is not to resume on-ice activities until the form is returned to the Head Coach.
3. The athlete and parent/guardian should be given the Concussion Information Sheet to help guide them through the process.

General:

- **Provincial Sport Organizations (PSO)**
  All PSOs are expected to encourage the prevention of concussions with strong education programs and rule enforcement. PSOs are expected to have concussion policies and procedures and annually report all concussion incidents to Ringette Canada. PSOs are also expected to provide capacity to clubs to assist their concussion management initiatives.

- **Local Ringette Associations (clubs)**
  Clubs are under the jurisdiction of the PSO should adapt the PSO's concussion policy for their own activities. Clubs are expected to annually report all concussion incidents to their PSO.

Resources:

- Centres for Disease Control and Prevention – HEADS UP to Youth Sports
  http://www.cdc.gov/headsup/youthsports/index.html

- Parachute – Preventing Injuries Saving Lines – Concussion FAQ and Resources
  http://www.parachutecanada.org/injury-topics/topic/C9

CONCUSSION EMERGENCY ACTION PLAN

Emergency numbers:	**911** ~ If not, local police, fire, ambulance numbers should be posted	
Contact Information	President:	Cell:
	Manager:	Cell:
	Other:	Cell:
	Other:	Cell:
Facility Information	Address: Telephone: Nearest cross street:	Google Map
Person(s) on-site and in charge ☐ Clear risk of further harm to the injured person by securing the area and shelter the injured person from the elements. ☐ Designate who is in charge of the other participants. ☐ Protect yourself (wear gloves if in contact with body fluids such as blood). ☐ Check that airway is clear, breathing is present, a pulse is present, and there is no major bleeding. ☐ Wait by the injured person until the ambulance arrives and the injured person is transported. ☐ Fill in your PSO insurance service provider accident report form.		**Names** 1: 2: 3:
On-site Call Person(s) ☐ Call for emergency help. ☐ Provide all necessary information to dispatch (e.g. facility location, nature of injury, what, if any, first aid has been done). ☐ Clear any traffic from the entrance/access road before ambulance arrives. ☐ Wait by the driveway entrance to the facility to direct the ambulance when it arrives. ☐ Call the emergency contact person listed on the injured person's medical profile, or if present, ask emergency contact to monitor injured person.		**Names** 1: 2: 3:

CONCUSSION INCIDENT FORM

INCIDENT REPORT FORM			
Participant Information	Date:		
Last Name:		First Name:	
Phone:	Province:		
Gender Male ☐ Female ☐	Age:		
Club / League:			
Relevant other medical conditions			

INCIDENT INFORMATION REPORT			
Date of incident:			
Time of first intervention:			
Time of medical support:			
Describe the incident			
Conditions: (describe any significant information like surface quality):			
Actions Taken:			
After intervention, the individual was:	☐ sent home	☐ sent to hospital	☐ back on the ice
Form completed by:			
Print			
Date	Signature		

Information provided in this form will remain private and confidential.

COMPLETED FORMS MUST BE SUBMITTED TO RINGETTE CANADA ringette@ringette.ca

RINGETTE CANADA RINGUETTE CANADA

CONCUSSION RECOGNITION TOOL 5 ©

To help identify concussion in children, adolescents and adults

Supported by

RECOGNISE & REMOVE

Head impacts can be associated with serious and potentially fatal brain injuries. The Concussion Recognition Tool 5 (CRT5) is to be used for the identification of suspected concussion. It is not designed to diagnose concussion.

STEP 1: RED FLAGS — CALL AN AMBULANCE

If there is concern after an injury including whether ANY of the following signs are observed or complaints are reported then the player should be safely and immediately removed from play/game/activity. If no licensed healthcare professional is available, call an ambulance for urgent medical assessment:

- **Neck pain or tenderness**
- **Double vision**
- **Weakness or tingling/ burning in arms or legs**
- **Severe or increasing headache**
- **Seizure or convulsion**
- **Loss of consciousness**
- **Deteriorating conscious state**
- **Vomiting**
- **Increasingly restless, agitated or combative**

Remember:

- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Assessment for a spinal cord injury is critical.
- Do not attempt to move the player (other than required for airway support) unless trained to so do.
- Do not remove a helmet or any other equipment unless trained to do so safely.

If there are no Red Flags, identification of possible concussion should proceed to the following steps:

STEP 2: OBSERVABLE SIGNS

Visual clues that suggest possible concussion include:

- Lying motionless on the playing surface
- Slow to get up after a direct or indirect hit to the head
- Disorientation or confusion, or an inability to respond appropriately to questions
- Blank or vacant look
- Balance, gait difficulties, motor incoordination, stumbling, slow laboured movements
- Facial injury after head trauma

STEP 3: SYMPTOMS

- Headache
- "Pressure in head"
- Balance problems
- Nausea or vomiting
- Drowsiness
- Dizziness
- Blurred vision
- Sensitivity to light
- Sensitivity to noise
- Fatigue or low energy
- "Don't feel right"
- More emotional
- More Irritable
- Sadness
- Nervous or anxious
- Neck Pain
- Difficulty concentrating
- Difficulty remembering
- Feeling slowed down
- Feeling like "in a fog"

STEP 4: MEMORY ASSESSMENT

(IN ATHLETES OLDER THAN 12 YEARS)

Failure to answer any of these questions (modified appropriately for each sport) correctly may suggest a concussion:

- "What venue are we at today?"
- "Which half is it now?"
- "Who scored last in this game?"
- "What team did you play last week/game?"
- "Did your team win the last game?"

Athletes with suspected concussion should:

- Not be left alone initially (at least for the first 1-2 hours).
- Not drink alcohol.
- Not use recreational/ prescription drugs.
- Not be sent home by themselves. They need to be with a responsible adult.
- Not drive a motor vehicle until cleared to do so by a healthcare professional.

ANY ATHLETE WITH A SUSPECTED CONCUSSION SHOULD BE IMMEDIATELY REMOVED FROM PRACTICE OR PLAY AND SHOULD NOT RETURN TO ACTIVITY UNTIL ASSESSED MEDICALLY, EVEN IF THE SYMPTOMS RESOLVE

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