# Appendix C-1
## Concussion Management Procedures: Return to School and Return to Sport/Physical Activity

**Revised 2019**

### Introduction

Concussion is a serious injury and the prevention, identification and management are a priority. Evidence based best practices in identifying and managing concussion is reviewed roughly every 4 years by the Scientific Committee and Expert Panel of the International Consensus Conference on Concussion in Sport[1]. This has led to some changes in how concussions are identified and managed. The concussion protocol, contained within this appendix comes from various sources including the Canadian Guideline on Concussion in Sport[2], Ophea[3], Parachute Canada Organization, District Scolaire Francophone – Sud[4] and NB Trauma Program[5.] This protocol was also revised following consultation and collaboration with the NB Trauma Program, Vitalité Health Network, Horizon Heath Network, the Office of Chief Medical Officer of Health, the Sport and Recreation Branch from the Department of Tourism, Heritage and Culture, the Francophone and Anglophone School Districts, as well as, the New Brunswick Interscholastic Athletic Association.

### Context

Recent research indicates that a concussion can have a significant impact on a student's cognitive and physical abilities. In fact, research shows that activities that require concentration can actually cause a student's concussion symptoms to reappear or worsen. It is equally important to develop strategies to assist students as they "return to school" as it is to develop strategies to assist them as they "return to sport/physical activity". Without addressing identification and proper management, a concussion can result in permanent brain damage and in rare occasions, even death.

Research also suggests that students who suffer a second concussion before they are symptom free from the first concussion are susceptible to a prolonged period of recovery, and possibly Second Impact Syndrome – a rare condition that causes rapid and severe brain swelling and often catastrophic results.

Due to the seriousness of a concussion, school administrators, educators (including supply teachers), school staff, students, parents/guardians, and identified school volunteers all have important roles to play in implementing the school district's concussion strategy, i.e. prevention, identification, and ongoing monitoring and management of a student with a concussion.

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[1]McCrory et al. (2017). Consensus statement on concussion in sport – the 5th international conference on concussion in sport held in Berlin, October 2016. British Journal of Sports Medicine, 51 (11), 838-847.
[2]Parachute Canada. (2017). Canadian Guideline on Concussion in Sport. Toronto: Parachute http://www.parachutecanada.org/injury-topics/item/canadian-guideline-on-concussion-in-sport Parachute Canada Organization (2017). http://www.parachutecanada.org
[3]Ophea (2018) Revised Concussion Protocols and Implementation Tools. http://safety.ophea.net/concussions
[4]District Scolaire Francophone -Sud http://francophonesud.nbed.nb.ca
[5]New Brunswick Trauma Program. https://nbtrauma.ca

## Key Terms

**Baseline Testing:** Is the practice of having athlete complete certain concussion assessment tools before sport participation – usually before the start of a season – to get baseline or "pre-injury" measurements. Baseline Testing is not required. See Parachute for further information.

**Collaborative Team:** The collaborative team consists of the student, the student's parents/guardian, school personnel who work with the student, the licensed healthcare provider and in some cases, outside coaches or community group leaders who have the shared responsibility for the student's recovery. In consultation with the parent/guardian, the collaborative team identifies the student's needs and provides strategies and approaches or adaptations for the prescribed stages.

**Concussion Management Lead:** This individual will serve as the main point of contact for the student, the parents/guardians, and other school staff and volunteers who work with the student, as well as monitor the student's progress through the Return to School and Return to Sport/Physical Activity Strategies.

**Licensed Healthcare Professional:** A healthcare provider who is licensed by a national professional regulatory body to provide concussion-related healthcare services that fall within their licensed scope of practice. Examples include medical doctors, nurses, physiotherapists, and athletic therapists. Among licensed healthcare professionals, only medical doctors and nurse practitioners are qualified to conduct a comprehensive medical assessment and provide a concussion diagnosis in New Brunswick.

**Multidisciplinary Concussion Clinic:** A facility or network of licensed healthcare professionals that provide assessment and treatment of concussion patients and are supervised by a physician with training and experience in concussion.

**Persistent Symptoms:** Concussion symptoms that last longer than 2 weeks after injury in adults and longer than 4 weeks after injury in youth.

**Return-to-School Strategy:** A graduated stepwise strategy for the process of recovery and return to academic activities after a concussion. This was commonly referred to as "return to learn".

**Responsible Adult:** The adult in charge of the student at the time of the incident (teacher, principal, coach, volunteer, educational assistant, etc.)

**Return-to-Sport/Physical Activity Strategy:** A graduated stepwise strategy for the process of recovery and then return to sport participation after a concussion. This was commonly referred to as "return to play". For the purpose of the public school system, this will be referred to as "Return to Sport/Physical Activity".

# COMPONENTS OF THE CONCUSSION PROTOCOL

## Concussion Definition

**A concussion is:**

- is a traumatic brain injury that causes changes in how the brain functions, leading to signs and symptoms that can emerge immediately or in the hours or days after the injury;
- signs and symptoms can be physical (e.g. headache, dizziness), cognitive (e.g. difficulty concentrating or remembering), emotional/behavioural (e.g. depression, irritability) and/or related to sleep (e.g. drowsiness, difficulty falling asleep);
- may be caused by a jarring impact to the head, face, neck or body, with an impulsive force transmitted to the head, that causes the brain to move rapidly and hit the walls of the skull (for a visual description of how a concussion occurs, see cdn.hockeycanada.ca/hockey- canada/Hockey-Programs/Safety/Concussion/Infographic/english.html
- can occur even if there has been no loss of consciousness (in fact most concussions occur without a loss of consciousness); and, cannot normally be seen on X-rays, standard CT scans or MRIs.

There are three components to the concussion protocol: **Prevention**, **Identification** and **Management**.

## 1. PREVENTION COMPONENT

It is important to encourage a culture of safety awareness and to take a preventative approach when students are physically active.

Evidence indicates that concussion education and awareness leads to a reduction in the incidence and improved outcomes. Thus, it is essential to educate individuals to achieve improvement in the prevention identification and management of concussion which includes students, parents, school administration, teachers, coaches, referees, and health care professionals (**Refer to Appendix C-2: Concussion Education Sheet**).

Concussion education to stakeholders responsible for student safety should include information on:

- Prevention
- Identification and Procedures
- Management

The concussion injury prevention approach includes primary, secondary, and tertiary strategies.

**Primary prevention** refers to all actions or measures taken to reduce the incidence of any disease or injury, including head injuries that may lead to brain-related concussion in school-aged children.

To decrease risk of injury, it is necessary to ensure the environment is as safe as reasonably possible (school, playgrounds, gymnasium, etc.) to minimize situations that can cause concussions including:

1. Promoting a culture of fair play and respect for all activities;
2. Providing a safe environment and adequate facilities (see specific guidelines for each sport/activity in the NB Physical Education Guidelines);
3. Setting up and enforcing safe rules of the game;
4. Wearing appropriate protective equipment, and where appropriate, limiting participation in contact sports and limiting contact during practices;
5. Teaching skills and techniques in the proper progressions and students must be instructed and trained in the appropriate body contact skills and techniques of the activity/sport prior to contact practice/game situations.

**Secondary prevention** includes all actions taken to reduce the occurrence or number of cases of illness or injury, thus reducing the duration of such disease or injury. In the context of these guidelines, it refers to early identification and expert management of a concussion, which help to reduce the aggravation of concussions in students who have received head injuries.

**Tertiary prevention** are strategies determined in collaboration with health care providers to help prevent long-term complications of a concussion (post-concussion syndromes and second impact syndromes).

Primary and secondary prevention strategies are the focus of the concussion injury prevention information located in the following Appendices (**Appendix C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8**).

## 2. IDENTIFICATION COMPONENT

**Identification of a Suspected Concussion**

Responsible adults are accountable for identifying and reporting students who demonstrate signs and/ or symptoms of a concussion. In some instances, the responsible adult may not observe any signs, or have any symptoms reported, but because of the nature of the impact, will suspect a concussion.

The identification component is comprised of the following interventions:

a) initial response;
b) identification of a suspected concussion (e.g. **Appendix C-3: Tool to Identify a Suspected Concussion**);
c) steps required following the identification of a possible concussion; and
d) steps required when sign(s) and/or symptom(s) are not identified but a possible concussion event was recognized.

## a) INITIAL RESPONSE (Teachers, Coaches, Trainers, Officials, Students)

If a student receives a blow to the head, face, neck or a blow to the body that transmits a force to the head, the responsible adult must take immediate action:

- Determine if this a medical emergency and follow basic first aid.
- If there is a medical emergency, **Call 911** and initiate Emergency Action Plan (Appendix E**)**

**b) IDENTIFICATION OF A SUSPECTED CONCUSSION – Use** Appendix C-3: Tool to Identify a Suspected Concussion

**Step 1.** Check for **Red Flag** sign(s) and/or symptom(s).
If any **Red Flag** sign(s) and or symptom(s) are present, **call 911 immediately and do not attempt to move the student unless trained** to do so.

| RED FLAGS | |
|---|---|
| **You see:** | **The student complains of:** |
| ❑ Vomiting | ❑ Neck pain or tenderness |
| ❑ Seizure or convulsion | ❑ Double vision |
| ❑ Deteriorating conscious state | ❑ Severe or increasing headache |
| ❑ Loss of consciousness | ❑ Weakness or tingling/burning in arms or legs |
| ❑ Increasingly restless, agitated or combative | |

**If there are No Red Flag sign(s) and/or symptom(s) follow steps 2 - 4 as outlined in** Appendix C-3: Tool to Identify a Suspected Concussion**.**

**c) STEPS REQUIRED FOLLOWING THE IDENTIFICATION OF A SUSPECTED CONCUSSION (signs observed and/or symptoms reported)**

**If sign(s) are observed and/or symptom(s) are reported and/or the student fails the Quick Memory Function Check (see Appendix C-3):**

**Responsible Adult Response**

If a concussion is suspected – do not allow the student to return to the classroom or return to play in the activity, game or practice that day, even if the student states that they are feeling better.

- Contact the student's parent/guardian (or emergency contact) to inform them:
  - of the incident;
  - that they need to come and pick up the student; and,
  - that the student needs to be examined by a medical doctor or nurse practitioner as soon as possible that day.

- Monitor and document any changes (i.e., physical, cognitive, emotional/behavioural) in the student. If the parent/guardian of the student cannot be reached, the responsible adult must remain with the student. If symptoms worsen or red flags appear, contact 911. A designated responsible adult must accompany the student in the ambulance to the hospital.
- Refer to Policy 129 – Procedure for Reporting Accidents on Public School Premises Appendix A - Accident Report Form or your School District's injury report form for documentation procedures.
- Do not administer medication (unless the student requires medication for other conditions – e.g. insulin for a student with diabetes).
- Stay with the student until the parent/guardian (or emergency contact) arrives.
- The student must not operate a motor vehicle.

**Information Provided to Parent/Guardian**

**Parent/Guardian must be:**

- provided with a copy of "**Appendix C-3: Tool to Identify a Suspected Concussion**", **Appendix C-4: Documentation of Medical Examination, Appendix 5: Return to School Strategy, Appendix** and **C-7: Return to Sport/Physical Activity Strategy**;
- informed that the student needs an urgent Medical Assessment (as soon as possible that day) by a medical doctor or nurse practitioner; and,
- informed that they need to communicate to the school principal the results of the medical assessment (i.e. the student does not have a diagnosed concussion or the student has a diagnosed concussion) prior to the student returning to school (refer to the sample reporting form "**Appendix C-4: Documentation of Medical Examination**").

If no concussion is diagnosed: the student may resume regular learning and physical activities.

If a concussion is diagnosed: the student follows a medically supervised, individualized and gradual Return to School/Return to Sport/Physical Activity Strategies. (refer to **Appendix C-5: Return to School Strategy** and **Appendix C-7: Return to Sport/Physical Activity Strategy)**

**d) STEPS REQUIRED WHEN SIGNS AND/OR SYMPTOMS ARE NOT IDENTIFIED BUT A POSSIBLE CONCUSSION EVENT WAS RECOGNIZED**

If signs and/symptoms are not observed or reported and the student correctly answers all the Quick Memory Function questions, however, the responsible adult recognized that a possible concussion event occurred and since signs and symptoms can occur hours do days later, the procedures to be followed are:

**Responsible Adult Response**

- Students must not return to physical activity for a minimum of 24 hours as signs and/or symptoms can take hours or days to emerge.
- The student's parent/guardian (or emergency contact) must be contacted and informed of the incident.
- A record of all information given to the parent/guardian must be kept;
- The student must be monitored by school staff for delayed sign(s) and/or symptom(s).

- If any sign(s) and/or symptom(s) emerge (observed or reported) during the school day, a parent/guardian must be informed immediately that the student needs an urgent Medical Examination (as soon as possible that day).

- After a minimum of 24 hours under observation, if the student has not shown/reported any signs and/or symptoms, they may resume physical activity without Medical Clearance.

**Information to be Provided to Parent/Guardian**

Parent/Guardian must be:

- provided with a copy of "**Appendix C-3: Tool to Identify a Suspected Concussion**". If possible, provide parents with the signed copy of Appendix C-3 and provide the principal with the original copy to be added to the student's cumulative record folder;
- informed that the student can attend school but cannot participate in any physical activity for a minimum of a minimum of 24 hours;
- informed that signs and symptoms may not appear immediately and may take hours or days to emerge;
- informed that the student should be monitored following the incident for a minimum of 24 hours (at school and home) for the emergence of sign(s) and/or symptom(s);
- continued observation by parent/guardian (minimum 24 hours) may be necessary as signs and/or symptoms may take hours or days to emerge;
- informed that if any signs or symptoms emerge, the student needs an urgent Medical Examination (as soon as possible that day) by a medical doctor or nurse practitioner; and
- informed that if after 24 hours of observation sign(s) and symptom(s) do not emerge, the student may return to physical activity. Medical clearance is not required.

## 3. MANAGEMENT COMPONENT: PROCEDURES FOR A DIAGNOSED CONCUSSION – RETURN TO SCHOOL AND RETURN TO SPORT/PHYSICAL ACTIVITY

If a concussion is diagnosed by a medical doctor or nurse practitioner, the student follows a medically supervised, individualized, and gradual Return to School and Return to Sport/Physical Activity Strategies.

There are two parts to a student's Return to School and Return to Sport/Physical Activity Strategies. The first part occurs at home and prepares the student for the second part which occurs at school.

The home stages of Return to School and Return to Sport/Physical Activity Strategies occur under the supervision of the parent/guardian in consultation with the medical doctor or nurse practitioner or other licensed healthcare provider.

The management of a student's concussion is a shared responsibility, requiring regular communication between the home, school (Collaborative Team), and outside sports team (where appropriate), with consultation from the student's medical doctor or nurse practitioner. Other licensed healthcare providers (a healthcare provider who is licensed by a national professional regulatory body to provide concussion-related healthcare services that fall within their licensed scope of practice) may play a role in the management of a diagnosed concussion. Examples include nurses, physiotherapists, chiropractors, and athletic therapists.

**The Collaborative Team Approach**

The school collaborative team provides an important role in a student's recovery. In consultation with the parent/guardian, the team identifies the student's needs and provides learning strategies and approaches or adaptations for the prescribed stages in Table 1: Learning Strategies for Students Following a Concussion.

The collaborative team should consist of:

- school principal/designate (leads the team)
- the student;
- the student's parents/guardians;
- teachers and volunteers who work with the student; and
- the medical doctor or nurse practitioner and/or appropriate licensed healthcare providers (e.g. nurses, physiotherapists, chiropractors, and athletic therapists).

It is important for the school principal/designate lead, in consultation with other members of the collaborative team, to understand the student's symptoms and how they respond to various learning activities to develop appropriate strategies and/or approaches that meet the needs of the student. School staff and volunteers who work with the student need to be aware of the possible difficulties (i.e., cognitive, emotional/behavioural) a student may encounter when returning to learning activities following a concussion. These difficulties may be subtle and temporary but may significantly impact a student's performance.

**Responsibility of Parent/Guardian**

Parents and guardians need to understand what a concussion is and the potential effects on school learning and performance. Medical attention will be required and following professional guidance will ensure the most rapid and complete recovery possible.

Once a student has been diagnosed with a concussion, the parent/guardian must communicate to the school the results of the Medical Examination (see reporting form, **Appendix C-4: Documentation of Medical Examination**) who will then follow a medically supervised, individualized, and gradual Return to School and Return to Sport/Physical Activity Strategies. (**Appendix C-5, Appendix C-6** and **Appendix C-7**)

**Responsibility of the School Principal/Designate**

Once the parent/guardian has informed the school principal/designate of the results of the Medical Examination, the school principal/designate must:

- inform all school staff (e.g. classroom teachers, physical education teachers, intramural supervisors, coaches) and volunteers who work with the student of the results of the Medical Examination;
- establish the collaborative team along with the concussion management lead;
- ensure that the student follows the stages of Return to School and Return to Sport/Physical Activity Strategy;

- inform the student that they will not be participating in any learning activity or physical activity until the parent/guardian submits the results of the medical examination to the school principal/designate by completing **Appendix C-4: Documentation for Medical Examination**;
- record the written statement (**Appendix C-4: Documentation of Medical Examination**) or written document from a parent/guardian regarding the results of the Medical Examination in the student's cumulative record folder; and,
- meet with parent/guardian, and where appropriate the student (record all steps taken with parents, including date, time and documents provided);
    - to receive from the parents a completed copy of the **Appendix C-4: Documentation of Medical Examination;**
    - to explain the stages of Return to School and Return to Sport/Physical Activity Strategy that occur at home;
    - to explain the importance of completing home preparations before returning to school;
    - to provide a copy of the Return-to-School Strategy and the Return to Sport/Physical Activity Strategy; and
    - to provide information about concussion recovery:
        - Most students who sustain a concussion while participating in sport/physical activities will make a complete recovery and be able to return to full school and sport/physical activities within 1-4 weeks of injury.
        - Approximately 15-30% of individuals will experience symptoms that persist beyond this time frame.
        - Individuals who experience persistent post-concussion symptoms (more than 4 weeks) may benefit from referral to a medically supervised multidisciplinary concussion clinic that has access to professionals with licensed training in traumatic brain injury that may include experts in sport medicine, neuropsychology, physiotherapy, occupational therapy, neurology, neurosurgery, and rehabilitation medicine.
- Ensure all documentation is filed as per school district (e.g. **Appendix C3: Tool to Identify a Suspected Concussion**, **Appendix C-4: Documentation of Medical Examination**, as well as, the Collaborative Team's Learning Strategies and Adaptations for Student Recovery).

**Responsibility of the Teachers**

Teachers can often help observe changes in a student, including symptoms that may be worsening. Teachers are also in a position to interact regularly with the student's parents, thereby providing a channel to obtain and share information with them about the student's progress and challenges. Teachers must also provide student feedback that is appropriate to their age, level of understanding, and emotional status.

**Responsibility of the Student**

The affected student should be actively involved and encouraged to share their thoughts about how things are going, and share the symptoms they are experiencing.

**Responsibility of the Health Care Professionals**

Health care professionals involved in the student's diagnosis and recovery should provide an individualized plan for a student returning to school to help manage cognitive and physical exertion following a concussion. As a student recovers, health care professionals can help guide the gradual removal of academic adjustments or supports that may be instituted as part of the recovery process. Health care professionals must also provide student feedback that is appropriate to their age, level of understanding, and emotional status. Health Care Professionals are encouraged to use Appendix C-3 – Tool to Identify a Suspected Concussion or complete a Medical Assessment using the Sport Concussion Assessment Tool 5 (SCAT5 or the Child-SCAT5).

The home stages of the Return to School and Return to Sport/Physical Activity Strategies occur under the supervision of the parent/guarding in consultation with the medical doctor or nurse practitioner. Initially the student needs cognitive and physical rest followed by stages of cognitive and physical activity which are best accommodated in the home environment.

Each stage should last a minimum of 24 hours. If symptoms reappear or if the student is unable to tolerate the suggested activities at any specific stage, they should return to the previous stage. The student may need to move back a stage more than once during the recovery process. If signs, symptoms appear, persist or worsen, consult a medical doctor or nurse practitioner as soon as possible to discuss the next steps to follow.

**While the Return to School Strategy and the Return to Sport/Physical Activity Strategy are inter-related, they are not interdependent.** Both Return to School and Return to Sport/Physical Activity Strategies can be done in parallel. **However, Return to School Strategy should be completed before starting Stage 5 of the Return to Sport/Physical Activity Strategy.** A student's progress through the stages of Return to School is independent from their progression through the Return to Sport/Physical Activity stages. Different students will progress at different rates.

A student that has no symptoms when they return to school must progress through all of the Return to School and Return to Sport/Physical activity stages and remain symptom free for a minimum of 24 hours in each stage prior to moving to the next stage.