PENTATHLON CANADA NATIONAL CONCUSSION PROTOCOL

Pentathlon Canada has developed this *National Concussion Protocol* to help guide the management of participants who may have a suspected concussion as a result of participation in Pentathlon Canada's activities, which may include but is not limited to training sessions, competitions, games and championships (hereinafter "Pentathlon Canada Activities").

This *National Concussion Protocol*, and the accompanying ***Concussion Policy***, are adapted from the *Canadian Guideline on Concussion in Sport, 2nd edition (2024)* published by Parachute Canada. That Guideline documents incorporates and interprets information contained in the report that was prepared by the Concussion in Sport Group (CISG), a group of sport concussion medical practitioners and experts, and adapts concussion assessment and management tools from the 6th Consensus Statement on Concussion in Sport that was released in June 2023.

Additionally, this *National Concussion Protocol* recognizes the advent of concussion legislation throughout Canada; particularly *Rowan's Law (Concussion Safety), 2018* in Ontario.

Purpose

This *National Concussion Protocol* covers the recognition, medical diagnosis, and management of Pentathlon Canada participants who may sustain a suspected concussion during Pentathlon Canada Activities. It aims to ensure that participants with a suspected concussion receive timely and appropriate care and proper

management to allow them to return back to their sport safely. This protocol may not address every possible clinical scenario that can occur during Pentathlon Canada Activities but includes critical elements based on the latest evidence and current expert consensus.

Who should use this protocol?
This *National Concussion Protocol* is intended for use by all individuals who interact with participants inside and outside the context of Pentathlon Canada Activities, including participants, parents/guardians, coaches, officials, trainers, and licensed healthcare professionals.

For a summary of the *National Concussion Protocol* please refer to ***Appendix A - Sport Concussion Pathway***.

1. PRE-SEASON EDUCATION

Despite recent increased attention focusing on concussion there is a continued need to improve concussion education and awareness. Optimizing the prevention and management of concussion depends highly on annual education of all Pentathlon Canada Stakeholders (participants, parents/guardians, coaches, officials, trainers, licensed healthcare professionals) on current evidence-informed approaches that can prevent concussion and more serious forms of head injury and help identify and manage a participant with a suspected concussion.

Concussion education should include information on:

- the definition of concussion,
- possible mechanisms of injury (MOI),
- common signs and symptoms,
- steps that can be taken to prevent concussions and other injuries from occurring in sport,
- what to do when a participant 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

- **Who:** Pentathlon Canada Stakeholders
- **How**: Pre-season Concussion Education Sheet

All parents/guardians and participants are encouraged to review ***Appendix B - Pre-season Concussion Education Sheet*** with their coach prior to the first meeting of the season. Pentathlon Canada strongly recommends that Member Associations require participants (and parents/guardians of minor participants) to review this document and submit a signed copy. In addition to reviewing information on concussions, it is also important that all Pentathlon Canada Stakeholders have a clear understanding of this *National Concussion Protocol***.** For example, through pre-season in-person orientation sessions for Pentathlon Canada Stakeholders.

2. HEAD INJURY RECOGNITION

Although the formal diagnosis of concussion should be made following a medical assessment, all Pentathlon Canada 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. This is particularly important because many sport and recreation venues will not have access to on-site licensed healthcare professionals.

A concussion should be suspected if an athlete sustains an impact to the head, face, neck or body and:

- **demonstrates one or more observable signs** of a suspected concussion (as detailed in the Concussion Recognition Tool 6), OR
- **reports one or more symptoms** of suspected concussion (as detailed in the Concussion Recognition Tool 6).

This includes cases where the impact wasn't witnessed, but anyone witnesses the athlete exhibiting one or more observable signs of suspected concussion or the athlete reports one or more symptoms of suspected concussion to one of their peers, parents/caregivers, coaches or teachers.

If a participant demonstrates any of the **red flags** described below**,** a severe head or spine injury should be suspected, and Emergency Medical Assessment (section 3a of this document) should be pursued:

a) Neck pain or tenderness
b) Loss of vision or double vision
c) Weakness or tingling / burning in arms or legs
d) Severe or increasing headache
e) Seizure or convulsion
f) Loss of consciousness
g) Deteriorating conscious state
h) Vomiting more than once
i) Increasingly restless, agitated, or combative
j) Getting more and more confused

In the event of a suspected concussion where there are **observable signs** of a concussion, **symptoms** of a concussion, or a failure to correctly answer **awareness questions**, the Participant should be immediately removed from participation by a designated person[1] and Sideline Medical Assessment (section 3b of this document) and/or Medical Assessment (section 4) should be pursued.

The following **observable signs** may indicate a possible concussion:

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

A concussion may result in the following **symptoms**:

a) Headache or "pressure in head"
b) Balance problems or dizziness
c) Nausea or vomiting
d) Drowsiness, fatigue, or low energy
e) Blurred vision

[1] A designated person is defined as the person selected or assigned by the organization as being familiar with the Concussion Protocol and Policy. If multiple people familiar with the Concussion Protocols and Policy were available to act in the designated person role, the top choice to fill this role will be a medical professional, followed by the coach and event organizer.

f) Sensitivity to light or noise
g) More emotional or irritable
h) “Don’t feel right”
i) Sadness, nervousness, or anxiousness
j) Difficulty remembering or concentrating
k) Feeling slowed down or “in a fog”

Failure to correctly answer any of these **awareness questions** may suggest a concussion:

a) Where are we today?
b) In which event are you participating?

Delayed signs and symptoms

If an athlete is removed from play following an impact for cautionary reasons, but there are no observable signs or symptoms of a suspected concussion, then the athlete can be returned to play but should be monitored for delayed symptoms for up to 48 hours.

- **Who**: Pentathlon Canada Stakeholders
- **How:** Recognizing red flags, observable signs, symptoms, and memory issues

3. ONSITE MEDICAL ASSESSMENT + REMOVAL FROM PARTICIPATION

Depending on the suspected severity of the injury, an initial assessment may be completed by emergency medical professionals or by an on-site licensed healthcare professional where available. In cases where a participant loses consciousness, or it is suspected a participant might have a more severe head or spine injury, Emergency Medical Assessment by emergency medical professionals should take place (see section 3a Emergency Medical Assessment below). If a more severe injury is not suspected, the participant should undergo Sideline Medical Assessment or Medical Assessment, depending on if there is a licensed healthcare professional present (see section 3b Sideline Medical Assessment and section 4 Medical Assessment below).

3a. Emergency Medical Assessment

If a participant is suspected of sustaining a more severe head or spine injury during Pentathlon Canada Activities, an ambulance should be called immediately to transfer the patient to the nearest emergency department for further Medical Assessment.

Pentathlon Canada Stakeholders should not make any effort to remove equipment or move the participant until an ambulance has arrived and the participant should not be left alone until the ambulance arrives. After the emergency medical services staff has completed the Emergency Medical Assessment, the participant should be transferred to the nearest hospital for Medical Assessment. In the case of minors, the participant’s parents/guardians should be contacted immediately to inform them of the participant’s injury. For participants who are older than the age of majority, their emergency contact person should be contacted if one has been provided.

- **Who**: Emergency medical professionals

3b. Sideline Medical Assessment

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 by a designated person.

After removal from participation, the following actions should be taken:

a) The designated person who removed the Participant should consider calling 9-1-1;
b) Pentathlon Canada must make and keep a record of the removal;
c) The designated person must inform the Participant's parent or guardian if the Participant is younger than the age of majority and the designated person must inform the parent or guardian that the Participant is required to undergo a medical assessment by a physician or nurse practitioner before the Participant will be permitted to return to participation; and
d) The designated person will remind the Participant, and the Participant's parent or guardian as applicable, of Pentathlon Canada's Return-to-Sport protocol as described in this *National Concussion Protocol*

Until they have been medically assessed, participants who have a suspected concussion and who are removed from participation should:

a) Not be left alone (at least for the first 3 hours)
b) Be monitored
c) Have any cognitive, emotional, or physical changes documented
d) Not drink alcohol
e) Not use recreational drugs or drugs not prescribed by their healthcare provider
f) Not be sent home by themselves
g) Not drive a motor vehicle until cleared to do so by a medical professional

Scenario 1: If a licensed healthcare professional is present when the participant is removed from participation, the participant should be taken to a quiet area and undergo Sideline Medical Assessment using the Sport Concussion Assessment Tool – 6th edition (SCAT6) (for Participants ages 13 years and older) or the Child SCAT6 (for Participants ages 8 to 12 years).

The SCAT6 and Child SCAT6 are clinical tools that should only be used by a licensed healthcare professional who has training and experience using them. These tools can be used as part of the overall clinical assessment and screening for concussion. It is important to note that the results of SCAT6 and Child SCAT6 testing can be normal in the setting of acute concussion and that signs and symptoms may evolve over time. As such, these tools can be used by licensed healthcare professionals to document initial symptoms and neurological status but 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 should be referred for medical assessment.

Scenario 2: If there is no licensed healthcare professional present when the participant is removed from participation, the participant should be referred for medical assessment by a medical doctor or nurse practitioner as soon as possible.

- **Who**: Athletic therapists, physiotherapists, medical doctor
- **How**: SCAT6 and Child SCAT6

4. MEDICAL ASSESSMENT

The medical assessment is responsible for determining whether the athlete has a diagnosed concussion or not. To provide comprehensive evaluation of athletes with a suspected concussion, the medical assessment must:

- rule out more serious forms of traumatic brain and spine injuries,
- rule out medical and neurological conditions that can present with concussion-like symptoms, and
- make the differential diagnosis of concussion based on findings of the clinical history and physical examination and the evidence-based use of adjunctive tests as indicated (e.g., CT scan).

Licensed healthcare professionals in Canada whose scope of practice matches these requirements are medical doctors and nurse practitioners. Medical doctors who can evaluate patients with a suspected concussion include: pediatricians, family medicine physicians, sports medicine physicians, emergency department physicians, internal medicine physicians, physiatrists (rehabilitation physicians), neurologists and neurosurgeons.

In geographic regions of Canada with limited access to medical doctors (e.g., rural or northern communities), a licensed healthcare professional (e.g., nurse) with pre-arranged access to a medical doctor or nurse practitioner can facilitate this role.

Scope of practice for licensed healthcare professionals can vary by province and territory. Of note:

- In Manitoba, physician assistants can diagnose concussion.
- In Quebec, nurse practitioners cannot diagnose concussion. The role of physiotherapists in the assessment and management of concussion is specified. Learn more

Athletes who are determined to have not sustained a concussion should be provided with a Medical Assessment Letter indicating a concussion has not been diagnosed. The athlete can return to school, work and sport activities without restriction.

Athletes diagnosed with a concussion should be provided with a Medical Assessment Letter indicating a concussion has been diagnosed. The athlete must follow a gradual return to activities, including school, work and sport activities (see section 5. Concussion Management).

Because the Medical Assessment Letter contains personal health information, it is the responsibility of the athlete or their parent/legal guardian to provide this documentation to the athlete's coaches, teachers or employers. It is also important for the athlete or coach to provide this information to sport organization administrators who are responsible for injury reporting and concussion surveillance, where applicable.

- **Who**: Medical doctor, nurse practitioner, nurse
- **How:** *Medical Assessment Letter*

5. CONCUSSION MANAGEMENT

Participants diagnosed with a concussion should be provided with education about the signs and symptoms of a concussion, strategies about how to manage their symptoms, the risks of returning to sport without medical clearance and recommendations regarding a gradual return to school (if applicable) and sport activities. Participants diagnosed with a concussion are to be managed according to their *Return-to-School* (if applicable)

and *Return-to-Sport Strategy* under the supervision of a medical doctor or nurse practitioner. When available, participants should be encouraged to work with the team athletic therapist or physiotherapist to optimize progression through their *Return-to-Sport Strategy.*

The stepwise progressions for *Return-to-School* and *Return-to-Sport Strategies* are outlined below. Note that these strategies begin at the same time, can happen concurrently and the first step of both is the same.

Return-to-School Strategy

The following is an outline of the *Return-to-School Strategy* that should be used to help student-participants, parents/guardians, and teachers to collaborate in allowing the participant to make a gradual return to school activities. Every concussion is unique and, depending on the severity and type of the symptoms present, progression through the following steps will look different for each student-participant. Participants should also be encouraged to ask their school if they have a school-specific Return-to-Learn Program in place to help student-participants make a gradual return to school. This tool is a recommendation and should not replace medical advice.

Medical clearance is not required to return to school, except for full participation in school-based sport and physical activity. Return to sport and physical activity should be guided by the Return-to-Sport Strategy.

Students do not need to be symptom-free to return to school and complete absence from school of more than one week is not recommended. It is common for a student's symptoms to worsen slightly with activity. This is acceptable as they progress through steps so long as the symptom exacerbation is:

- **mild:** Symptoms worsen by only one to two points on a zero-to-10 scale, and
- **brief:** Symptoms settle back down to pre-activity levels within an hour.

If the student's symptoms worsen more than this, they should pause and adapt activities as needed.

Step	Activity	Description	Goal of each step
1	Activities of daily living and relative rest (first 24 to 48 hours)	○ Typical activities at home (e.g. preparing meals, social interactions, light walking) that do not result in more than mild and brief worsening of symptoms ○ Minimize screen time	Gradual reintroduction of typical activities
After a maximum of 24 to 48 hours after injury, progress to step 2.			
2	School activities with encouragement to return to school (as tolerated)	○ Homework, reading or other light cognitive activities at school or at home ○ Take breaks and adapt activities if they result in more than mild and brief worsening of symptoms ○ Gradually resume screen time, as tolerated	Increase tolerance to cognitive work and connect socially with peers
If the student can tolerate school activities, progress to step 3.			

3	Part-time or full days at school with accommodations (as needed)	○ Gradually reintroduce schoolwork ○ Build tolerance to the classroom and school environment over time. Part-time school days with access to breaks throughout the day and other accommodations may be required ○ Gradually reduce accommodations related to the concussion and increase workload	Increase academic activities.
If the student can tolerate full days without accommodations for concussion, progress to step 4.			
4	Return to school full-time	○ Return to full days at school and academic activities, without accommodations related to the concussion ○ For return to sport and physical activity, including physical education class, refer to the Return-to-Sport Strategy	Return to full academic activities.
Return to school is complete.			

Table adapted from: Patricios, Schneider et al., 2023; Reed, Zemek et al., 2023

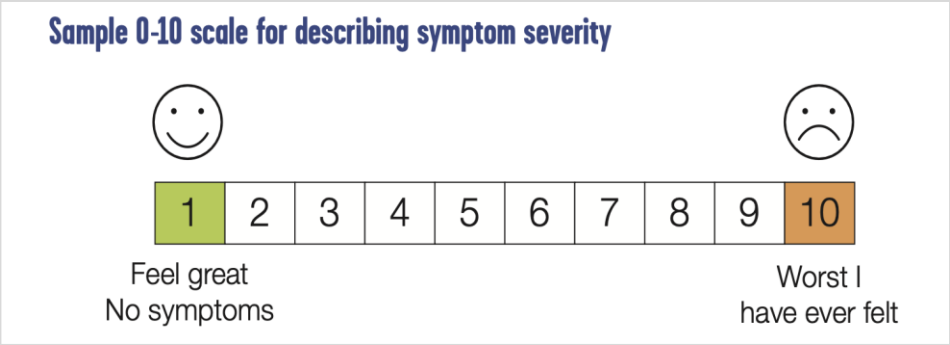
Return-to-Sport Strategy

The following is an outline of the Return-to-Sport Strategy that should be used to help participants, coaches, trainers, and medical professionals to partner in allowing the participant to make a gradual return to sport activities. This tool is a guideline and should not replace medical advice; with direction from a healthcare professional, timelines and activities may vary.

The participant should spend a minimum of 24 hours at each step before progressing on to the next. It is common for a participant's symptoms to worsen slightly with activity. This is acceptable as they progress through steps 1 to 3 of return to sport, so long as symptom exacerbation is:

- **mild:** symptoms worsen by only one to two points on zero-to-10 scale, and
- **brief:** symptoms settle back down to pre-activity levels within an hour.

If the participant's symptoms worsen more than this, they should stop the activity and try resuming the next day at the same step.



Before progressing to step 4 of the Pentathlon-specific Return-to-Sport Strategy, participants must:

- successfully complete all steps of the Return-to-School Strategy (if applicable), and

- provide their coach with a Medical Clearance Letter indicating they have been medically cleared to return to activities with risk of falling or contact.

If the participant experiences concussion symptoms after medical clearance (i.e., during steps 4 to 6), they should return to step 3 to establish full resolution of symptoms. Medical clearance will be required again before progressing to step 4.

Step	Activity	Activity details	Goal of each step
1	Activities of daily living and relative rest (first 24 to 48 hours)	○ Typical activities at home (e.g. preparing meals, social interactions, light walking) that do not result in more than mild and brief worsening of symptoms ○ Minimize screen time	Gradual reintroduction of typical activities.
After a maximum of 24 to 48 hours after injury, progress to step 2.			
2	2A: Light effort aerobic exercise	○ Start with light aerobic exercise, that results in only mild and brief worsening of symptoms. ○ Light aerobic exercise means: ▸ Exercise that might increase heart right slightly, but won't cause you to breathe harder or sweat (up to about 55% of maximum heart rate) ○ Take breaks and modify activities as needed **Examples:** ▸ stationary cycling ▸ walking at a slow to medium pace	Increase heart rate.
	2B: Moderate effort aerobic exercise	○ Gradually increase tolerance and intensity of aerobic activities, that do not result in more than mild and brief worsening of symptoms ○ Moderate exercise means: ○ Exercise that increases heart right and breathing slightly, but you could still hold a conversation while doing it (up to about 70% of maximum heart rate) ○ May begin light resistance training that results in only mild and brief worsening of symptoms ○ Take breaks and modify activities as needed **Examples:** ▸ stationary cycling ▸ walking at a brisk pace or light jogging	
If the athlete can tolerate moderate aerobic exercise, progress to step 3.			
3	Individual sport-specific activities, without risk of	○ Add sport-specific activities that result in only mild and brief worsening of symptoms. ○ Perform activities individually and under supervision from a coach or parent/caregiver	Increase the intensity of aerobic activities and introduce low-risk

	inadvertent head impact	**Examples:** ‣ **Fencing:** Footwork and individual drills (no partnering); No head contact ‣ **Laser run*:** Running, changing direction; Standing target laser shooting ‣ **Swimming**:** With sufficient space to prevent inadvertent contact with others; no flip turns; no diving into the pool ‣ **Obstacle:** Running, changing direction; No climbing or activities at heights yet *Notes:* *Focus and concentration involved in target shooting can worsen symptoms for some individuals. An athlete's tolerance of target shooting should be considered. **Swimming can worsen symptoms, such as dizziness and nausea, for some individuals. An athlete's tolerance of swimming should be carefully considered, and this activity may have to wait until after affected symptoms are gone.	sport-specific movements
Medical clearance The athlete should be free of all concussion-related symptoms at rest and with physical exertion and has been medically cleared, progress to step 4.			
4	Non-contact training drills and activities	○ Progress to exercises with no body contact at high intensity, including more challenging drills and activities ○ Athletes can be integrated into a multi-participant environment without contact **Examples:** ‣ **Fencing:** Controlled drills with a trusted partner; no head touches or other head contact ‣ **Laser Run:** Full training, including running and target shooting at full exertion ‣ **Swimming:** Including flip turns; no diving into the pool ‣ **Obstacle:** Begin and progress training that includes climbing, heights and passing under obstacles	Resume usual intensity of exercise, co-ordination and activity-related cognitive skills.
If the athlete can tolerate usual practice with no return of symptoms, progress to step 5.			
5	Return to all non-competitive activities, full training and practice	○ Progress to higher-risk activities including typical training activities, full-contact sport practices and physical education class activities ○ Do not participate in competitive gameplay **Examples:** ‣ **Fencing:** Full training, including all target areas ‣ **Laser Run:** Full training	Return to activities that have a risk of falling or body contact. Restore confidence and assess functional skills by coaching staff

		‣ **Swimming:** Full training, including diving into the pool ‣ **Obstacle:** Progress to full training	
If the athlete can tolerate non-competitive, high-risk activities with no return of symptoms, progress to step 6.			
6	Return to sport	Full training, practice and competition	
Return to sport is complete.			

Table adapted from: Patricios, Schneider et al., 2023; Reed, Zemek et al., 2023

- **Who**: Medical doctor, nurse practitioner and team athletic therapist or physiotherapist (where available)
- **How**: *Return-to-Learn Strategy, Return-to Sport Strategy, Medical Clearance Letter*

6. INTERDISCIPLINARY CONCUSSION CARE

Most participants who sustain a concussion while participating in sport will make a complete recovery and be able to return to full school without any concussion-related accommodations and full sport participation without restrictions within four weeks of injury. However, approximately 15 to 30 per cent of individuals will experience symptoms that last longer beyond this time frame.

Participants who experience persisting symptoms (longer than four weeks) may benefit from referral to specialized interdisciplinary concussion care for assessment and care that addresses the participant's individual symptoms and needs.

Care of persisting symptoms should follow the management recommendations in Canada's clinical practice guidelines:

- Pediatric guidelines (children and youth under 18)
- Adult guidelines (18 and older)

7. RETURN TO SPORT

Participants who have been determined to have not sustained a concussion and provide a Medical Assessment Letter indicating this can return to school, work and sport activities without restriction.

Participants who have been diagnosed with a concussion can be considered for medical clearance to return to sport activities with risk of contact or fall once they have successfully completed:

- all steps of the Return-to-School Strategy (if applicable), and
- steps 1 to 3 of the Pentathlon-specific Return-to-Sport Strategy.

The final decision to medically clear a participant to return to activity with risk of falls and contact should be based on the clinical judgment of the medical doctor or nurse practitioner, taking into account the participant's past medical history, clinical history, physical examination findings and the results of other tests and clinical consultations where indicated (i.e., neuropsychological testing, diagnostic imaging).

To progress to step 4 of return to sport, the participant must provide their coach with a *Medical Clearance Letter* that specifies that a medical doctor or nurse practitioner has personally evaluated the patient and has cleared the participant to return to sports. In geographic regions of Canada with limited access to medical doctors (e.g., rural, remote or northern communities), a licensed healthcare professional (such as a nurse) with pre-arranged access to a medical doctor or nurse practitioner can provide this documentation.

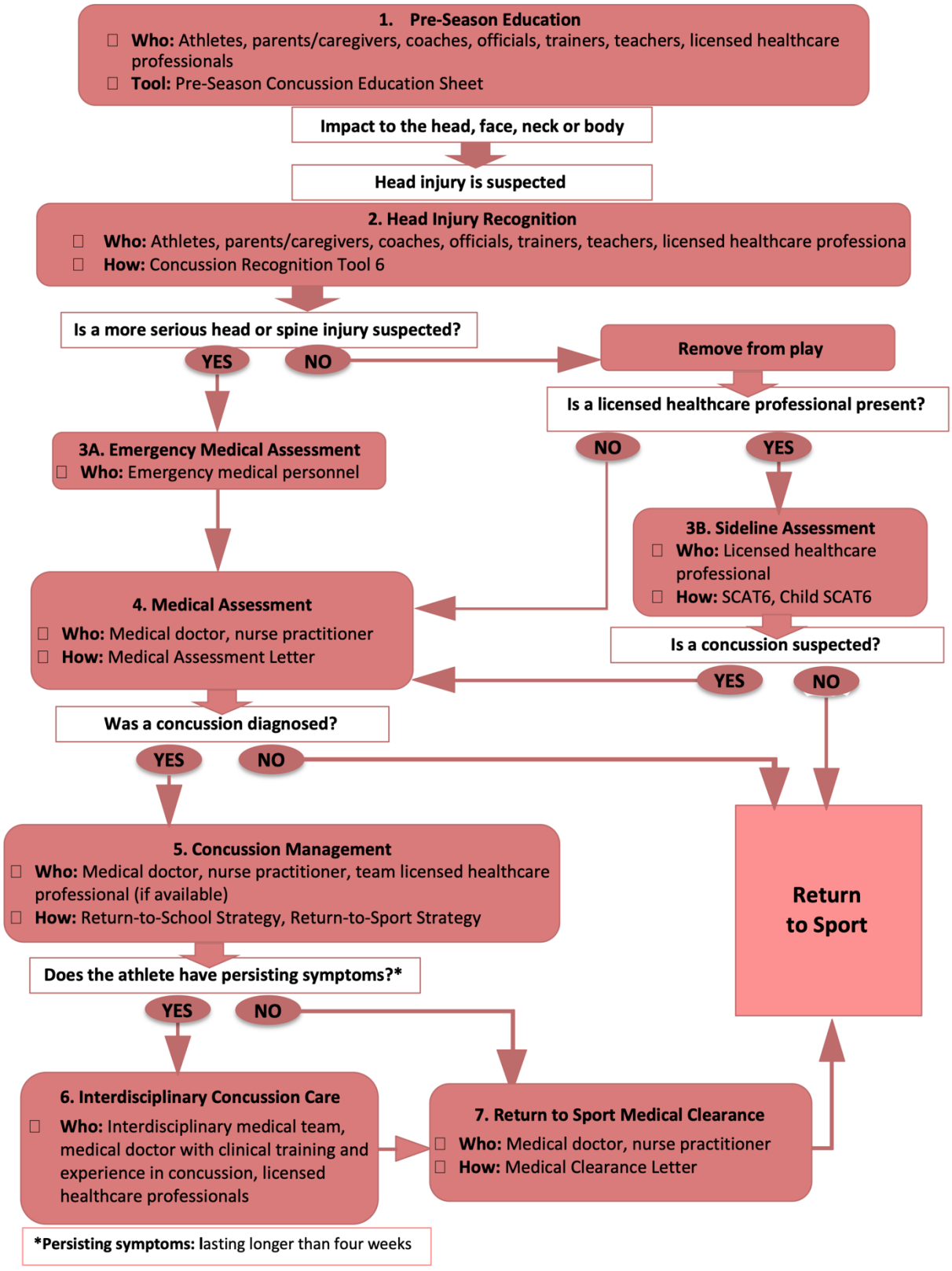
A copy of the *Medical Clearance Letter* should also be submitted to sports organization officials that have injury reporting and surveillance programs where applicable.

Participants who have been provided with a *Medical Clearance Letter* may progress through steps 4, 5 and 6 of the Pentathlon-specific Return-to-sport Strategy to gradually return to full, unrestricted sport activities. If the participant experiences any new concussion-like symptoms during these steps, they should be instructed to stop playing immediately, notify their parents/guardians, coaches, trainer or teachers, and return to step 3 to establish the full resolution of symptoms. Medical clearance is required again before progressing to step 4.

In the event that the participant sustains a new suspected concussion, this *National Concussion Protocol* should be followed as outlined here.

- **Who**: Medical doctor, nurse practitioner, nurse
- **Document:** *Medical Clearance Letter*

Appendix A – Sport Concussion Pathway



Appendix B – Pre-Season Concussion Education Sheet

WHAT IS A CONCUSSION?
A concussion is a brain injury that can't be seen on x-rays, CT or MRI scans. It affects the way a participant thinks and can cause a variety of symptoms.

WHAT CAUSES A CONCUSSION?
Any blow to the head, face or neck, or somewhere else on the body that causes a sudden jarring of the head may cause a concussion. Examples include getting body-checked in hockey or hitting one's head on the floor in gym class.

WHEN SHOULD I SUSPECT A CONCUSSION?
A concussion should be suspected if an athlete sustains an impact to the head, face, neck or body and:

- demonstrates one or more observable signs of a suspected concussion, OR
- reports one or more symptoms of suspected concussion.

Some participants will develop symptoms immediately while others will develop delayed symptoms (up to 48 hours after the injury).

WHAT ARE THE SYMPTOMS OF A CONCUSSION?
A person does not need to be knocked out (lose consciousness) to have had a concussion. Common symptoms include:

- Headaches or head pressure
- Dizziness
- Nausea and vomiting
- Blurred or fuzzy vision
- Sensitivity to light or sound
- Balance problems
- Feeling tired or having no energy
- Not thinking clearly
- "Don't feel right"
- Feeling more emotional, easily upset or angered
- Sadness
- Nervousness or anxiety
- Difficulty concentrating
- Difficulty remembering
- Feeling like "in a fog"
- Feeling slowed down
- Sleeping more or sleeping less
- Having a hard time falling asleep

WHAT ARE THE VISUAL SIGNS OF A CONCUSSION? Visual signs of a concussion may include:

- Lying motionless on the playing surface
- Slow to get up after a direct or indirect hit to the head
- Disorientation or confusion or inability to respond appropriately to questions
- Blank or vacant stare
- Unsteady on feet, balance problems, poor co-ordination, wobbly
- Facial injury after head trauma

WHAT SHOULD I DO IF I SUSPECT A CONCUSSION?
If any participant is suspected of sustaining a concussion during sports they should be immediately removed from play. Any participant who is suspected of having sustained a concussion during sports must not be allowed to return to the same game or practice.

In all cases of suspected concussion, the participant should be removed from the activity immediately and

undergo medical assessment as soon as possible. **It is important that all participants with a concussion receive written medical clearance from a medical doctor or nurse practitioner before returning to sport activities with a risk of contact or falls.**

WHEN CAN THE PARTICIPANT RETURN TO SCHOOL AND SPORTS?

It is important that all participants diagnosed with a concussion follow a stepwise return to school (if applicable) and sports-related activities that includes the following Return-to-School and Return-to-Sport Strategies. Note that these strategies begin at the same time, can happen concurrently and the first step of both is the same. It is important that athletes return to full-time school activities, if applicable, and provide a medical clearance letter before progressing to step 4 of return to sport.

Return-to-School Strategy

Step	Activity	Description	Goal of each step
1	Activities of daily living and relative rest (first 24-48 hours)	Typical activities at home (e.g. preparing meals, social interactions, light walking). Minimize screen time.	Gradual reintroduction of typical activities
2	School activities with encouragement to return to school (as tolerated)	Homework, reading or other light cognitive activities at school or home. Take breaks and adapt activities as needed. Gradually resume screen time, as tolerated.	Increase tolerance to cognitive work and connect socially with peers
3	Part-time or full days at school with accommodations	Gradually reintroduce schoolwork. Part-time school days with access to breaks and other accommodations may be required. Gradually reduce accommodations related to the concussion and increase workload.	Increase academic activities
4	Return to school full-time	Return to full days at school and academic activities, without accommodations related to the concussion.	Return to full academic activities

Return-to-Sport Strategy

Step	Activity	Description	Goal of each step
1	Activities of daily living and relative rest (first 24-48 hours)	Typical activities at home (e.g. preparing meals, social interactions, light walking). Minimize screen time.	Gradual reintroduction of typical activities.
2	2A: Light effort aerobic exercise	○ Start with light aerobic exercise (e.g. stationary cycling, walking), that results in only mild and brief worsening of symptoms. ○ Light aerobic exercise means exercise that might increase heart right slightly, but won't cause you to breathe harder or sweat (up to about 55% of maximum heart rate) ○ Take breaks and modify activities as needed	Increase heart rate.
	2B: Moderate effort aerobic exercise	○ Gradually increase tolerance and intensity of aerobic activities (e.g., brisk walking, light jogging), that do	

		not result in more than mild and brief worsening of symptoms ○ Moderate exercise means exercise that increases heart right and breathing slightly, but you could still hold a conversation while doing it (up to about 70% of maximum heart rate) ○ May begin light resistance training that results in only mild and brief worsening of symptoms ○ Take breaks and modify activities as needed	
3	Individual sport-specific activities, without risk of inadvertent head impact	○ Add sport-specific activities that result in only mild and brief worsening of symptoms. ○ Examples: Footwork drills, running and changing direction ○ No head contact, climbing or activities at heights yet ○ Perform activities individually and under supervision from a coach or parent/caregiver.	Increase the intensity of aerobic activities and introduce low-risk sport-specific movements.
Medical clearance			
4	Non-contact training drills and activities	○ Progress to exercises with no body contact at high intensity, including more challenging drills and activities ○ Begin and progress training that includes climbing, heights and passing under obstacles ○ Athletes can be integrated into a multi-participant environment without contact	Resume usual intensity of exercise, co-ordination and activity-related cognitive skills.
5	Return to all non-competitive activities, full-contact practice and physical education activities	○ Progress to higher-risk activities including typical training activities, full-contact sport practices and physical education class activities ○ Do not participate in competitive gameplay ○	Return to activities that have a risk of falling or body contact. Restore confidence and assess functional skills by coaching staff.
6	Return to sport	Full training, practice and competition	

Table adapted from: Patricios, Schneider et al., 2023; Reed, Zemek et al., 2023

HOW LONG WILL IT TAKE FOR THE PARTICIPANT TO RECOVER?

Most participants who sustain a concussion will make a complete recovery within 4 weeks. Approximately 15-30% of patients will experience persisting symptoms (>4 weeks) that may require additional medical assessment and management.

HOW CAN I HELP PREVENT CONCUSSIONS AND THEIR CONSEQUENCES?

Concussion prevention, recognition and management require participants to follow the rules and regulations of their sport, respect their opponents, avoid head contact, and report suspected concussions.

TO LEARN MORE ABOUT CONCUSSIONS PLEASE VISIT:
Parachute: **www.parachute.ca/concussion**

SIGNATURES: The following signatures certify that the participant and the participant's parent/guardian (when the participant is a minor) have reviewed the above information related to concussions.

_____	_____	_____
Printed name of participant	Signature of participant	Date

_____	_____	_____
Printed name of parent	Signature of parent	Date