GOLF NL CONCUSSION PROTOCOL

GOLF NL has developed the **GOLF NL Concussion Protocol** to help guide the management of athletes who may have a suspected concussion as a result of participation in **GOLF NL** activities.

Purpose
This protocol covers the recognition, medical diagnosis, and management of **PLAYERS** who may sustain a suspected concussion during a sport activity. It aims to ensure that athletes with suspected concussions receive timely and appropriate care and proper management to allow them to return to their sport safely. This protocol may not address every possible clinical scenario that can occur during sport-related activities but includes critical elements based on the latest evidence and current expert consensus.

Who should use this protocol?
This protocol is intended for use by all individuals who have a role interacting with athletes inside and outside the context of school and non-school based organized sports activity, including athletes, parents/caregivers, coaches, officials, teachers, trainers, and licensed healthcare professionals.

For a summary of the **GOLF NL Concussion Protocol** please refer to the **GOLF NL Sport Concussion Pathway** figure at the end of this document.

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 individuals with a role in the sport community on evidence-informed approaches that can prevent concussion and more serious forms of head injury and help identify and manage an athlete with a suspected concussion.

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 including Return-to-School and Return-to-Sport Strategies, and
- return-to-sport medical clearance requirements.

In addition to reviewing information on concussion, it is also important that all sport stakeholders have a clear understanding of the **GOLF NL Concussion Protocol.** For example, this can be accomplished through pre-season in-person orientation sessions for athletes, parents/caregivers, coaches and other sport stakeholders.

- **Who:** Athletes, parents/caregivers, coaches, officials, teachers, and trainers, licensed healthcare professionals
- **How**: Pre-season Concussion Education Sheet

2. Head Injury Recognition

Although the formal diagnosis of concussion should be made following a medical assessment, all individuals in the sport community, including athletes, parents/caregivers, coaches, officials, teachers, trainers and licensed healthcare professionals, are responsible for the recognition and reporting of athletes with a suspected concussion. This is particularly important because many sport and recreation venues will not have access to on-site licensed healthcare professionals.

Suspected 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 (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.

In all cases of suspected concussion, the athlete should be removed from the activity immediately and undergo medical assessment as soon as possible.

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.

Red Flag Symptoms

In some cases, an athlete may show signs or symptoms that potentially indicate a more severe head or spine injury, including loss of consciousness, convulsions, worsening headaches, repeated vomiting or neck pain (see a detailed list in the Concussion Recognition Tool 6).

If an athlete demonstrates any red flags, a more severe head or spine injury should be suspected, principles of first aid should be followed and emergency medical assessment should be pursued.

- **Who**: Athletes, parents/caregivers, coaches, officials, teachers, trainers and licensed healthcare professionals
- **How:** Concussion Recognition Tool 6

3. Onsite Medical Assessment
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 any red flags are present, emergency medical assessment by emergency medical professionals should take place (see 3a below). If a more severe injury is not suspected, the athlete should undergo Sideline Medical Assessment or Medical Assessment, depending on if there is a licensed healthcare professional present (see 3b below).

3a. Emergency Medical Assessment
If an athlete is suspected of sustaining a more severe head or spine injury, an ambulance should be called immediately to transfer the patient to the nearest emergency department for further Medical Assessment.

Coaches, parents/caregivers, trainers and officials should not make any effort to remove equipment or move the athlete and the athlete should not be left alone until the ambulance arrives. After the emergency medical services staff has completed the emergency medical assessment, the athlete should be transferred to the nearest hospital for medical assessment.

In the case of youth athletes, the athlete's parents or legal guardian should be contacted immediately to inform them of the injury. For adult athletes, their emergency contact person should be contacted if one has been provided.

- **Who**: Emergency medical professionals

3b. Sideline Medical Assessment
If an athlete is suspected of sustaining a concussion and there is no concern for a more serious head or spine injury, the player should be immediately removed from the field of play.

Scenario 1: If a licensed healthcare professional is present
The athlete should be taken to a quiet area and undergo sideline medical assessment using the Sport Concussion Assessment Tool 6 (SCAT6) or the Child SCAT6.

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 athletes. Any youth athlete who is suspected of having sustained a concussion must not return to the game or practice and should be referred for medical assessment.

- **Who**: Licensed healthcare professionals
- **How**: Sport Concussion Assessment Tool – 6th Edition (SCAT6)
  Child Sport Concussion Assessment Tool – 6th Edition (Child SCAT6)

Scenario 2: If there is no licensed healthcare professional present
An athlete with suspected concussion should be referred for medical assessment by a medical doctor or nurse practitioner as soon as possible.

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 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 and nurse practitioners (i.e., 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 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 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

Athletes diagnosed with a concussion should be provided with education about the signs and symptoms of concussion, treatment/management of their symptoms, the risks of returning to sport without medical clearance and recommendations regarding a gradual return to school (if applicable) and sport activities.

Athletes diagnosed with a concussion are to be managed according to their Return-to-School (if applicable) and sport-specific Return-to-Sport Strategies under the supervision of a medical doctor or nurse practitioner. When available, athletes should be encouraged to work with their team's licensed healthcare professionals to optimize progression through their sport-specific Return-to-Sport Strategy.

The stepwise progressions for Return-to-Sport Strategies is outlined below.

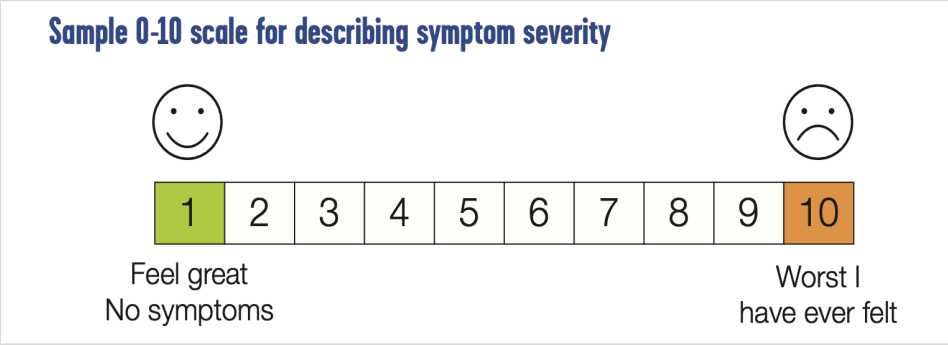
GOLF -specific Return-to-Sport Strategy

The following is an outline of the Return-to-Sport Strategy that should be used to help athletes, parents/caregivers, coaches, trainers and medical professionals to partner in allowing the athlete 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 athlete should spend a minimum of 24 hours at each step before progressing on to the next. It is common for an athlete'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 a zero-to-10 scale, and
- **brief:** symptoms settle back down to pre-activity levels within an hour.

If the athlete'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 GOLF - specific Return-to-Sport Strategy, athletes 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 athlete 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, such as stationary cycling and walking at a slow to medium pace ○ May begin light resistance training that does not result in more than mild and brief worsening of symptoms ○ Exercise up to approximately 55% of maximum heart rate ○ Take breaks and modify activities as needed	Increase heart rate
	2B: Moderate effort aerobic exercise	○ Gradually increases tolerance and intensity of aerobic activities, such as stationary cycling and walking at a brisk pace ○ Exercise up to approximately 70% of maximum heart rate ○ Take breaks and modify activities as needed	
If the athlete can tolerate moderate aerobic exercise, progress to step 3.			
3	Individual sport-specific activities, without risk of inadvertent head impact	○ Add sport-specific activities (e.g., running, changing direction, individual drills) ○ Perform activities individually and under supervision from a teacher, parent/caregiver or coach ○ Progress to where the athlete is free of concussion-related symptoms, even when exercising	Increase the intensity of aerobic activities and introduce low-risk sport-specific movements
Medical clearance If the athlete has completed return to school (if applicable) 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 (e.g.,	Resume the usual intensity of exercise, co-ordination and activity-related cognitive skills

		passing drills, multi-athlete training and practices)	
If the athlete can tolerate the usual intensity of activities with no return of symptoms, progress to step 5.			
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
If the athlete can tolerate non-competitive, high-risk activities, progress to step 6.			
6	Return to sport	Unrestricted sport and physical activity	
Return to sport is complete.			

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

- **Who**: Medical doctor, nurse practitioner, licensed healthcare professionals
- **How**: Return-to-School Strategy, Sport-Specific Return-to Sport Strategy, Medical Clearance Letter

6. Interdisciplinary Concussion Care

Most athletes 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 accommodation 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.

Athletes who experience persisting symptoms (longer than four weeks) may benefit from referral to specialized interdisciplinary concussion care for assessment and care that addresses the athlete'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

Athletes 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.

Athletes 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 **GOLF -** specific Return-to-Sport Strategy.

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

To progress to step 4 of return to sport, the athlete 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 athlete to return to sport. In geographic regions of Canada with limited access to medical doctors (i.e. rural, remote or northern communities), a licensed healthcare professional (i.e. a nurse) with pre-arranged access to a medical doctor or nurse practitioner can provide this documentation.

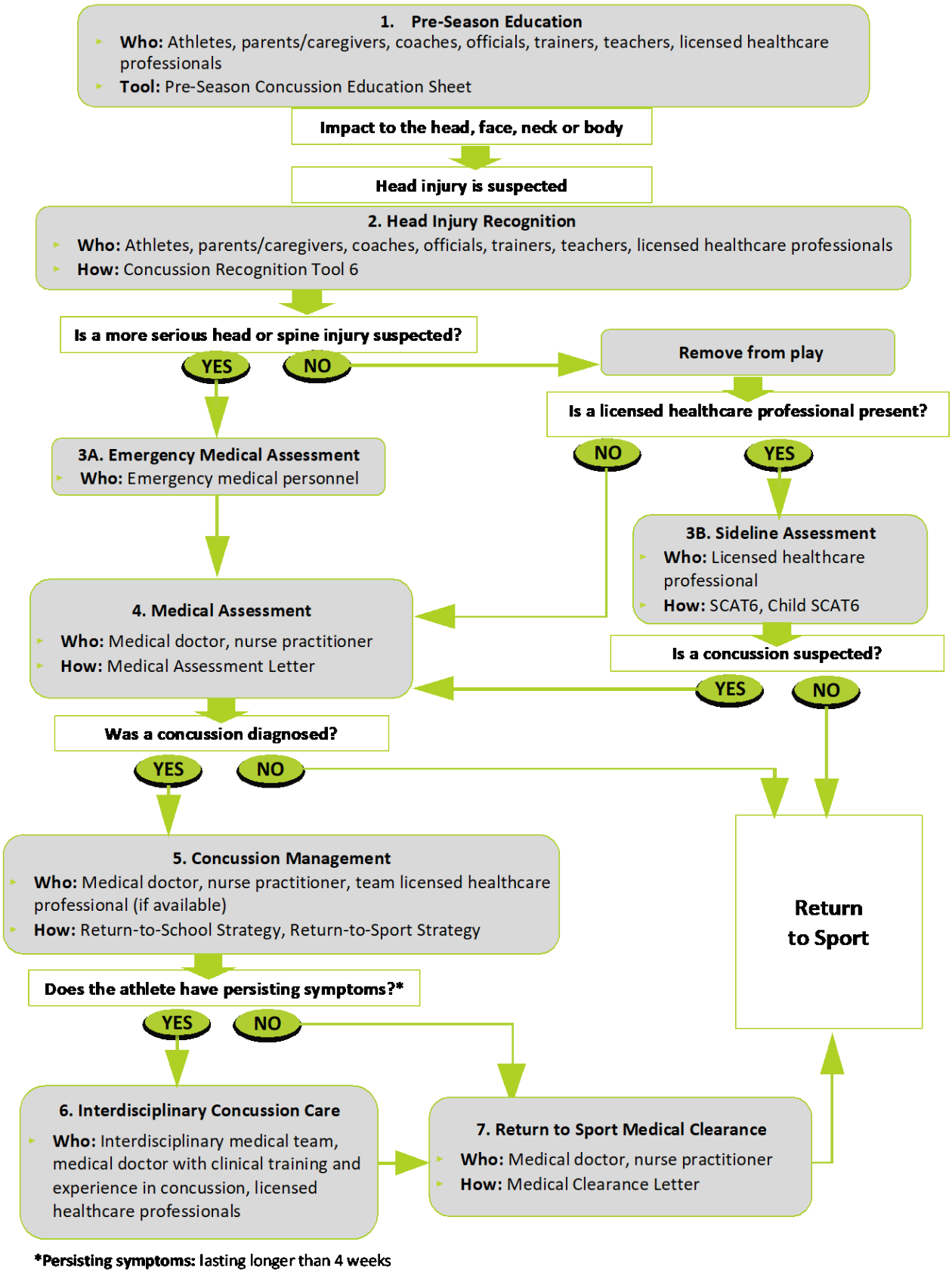
It is also important for the athlete or coach to provide this information to sport organization administrators who are responsible for injury reporting and concussion surveillance, where applicable.

Athletes who have been provided with a Medical Clearance Letter may progress through steps 4, 5 and 6 of the **GOLF -** specific Return-to-Sport Strategy - to gradually return to full, unrestricted sport activities. If the athlete experiences any new concussion-like symptoms during these steps, they should be instructed to stop the activity and return to step 3 to establish the full resolution of symptoms. Medical clearance is required again before progressing to step 4. This information should be provided to the appropriate people (e.g., coach, trainer, teacher).

If the athlete sustains a new suspected concussion, the **GOLF NL Concussion Protocol** should be followed as outlined here.

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

GOLF NL Concussion Pathway



***Persisting symptoms:** lasting longer than 4 weeks