

CONCUSSION MANAGEMENT GUIDELINES

FOR GAELIC GAMES





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2024

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INTRODUCTION

Gaelic games are contact sports. While collisions occur, they are not the primary focus of our games. The GAA has been at the forefront of concussion awareness and education since the publication of the Association's first statement on concussion in 2007. The latest update of the Concussion Management Guidelines took place in Q4 2024 and is based on the most recent medical evidence and international best practice. The GAA, LGFA and Camogie Association continue to take the issue of concussion extremely seriously, and this is reflected in the cross-Association approach to educational resources and initiatives available to our players, parents, match officials, coaches, and administrators.

The GAA has been represented at several conferences on the subject including the 5th International Conference on Concussion in Sport in Berlin in 2016 and the 6th International Conference on Concussion in Sport in Amsterdam in 2022. Concussion Symposiums and Conferences have also been held regularly in association with partners such as the Bon Secours Health System and UPMC in relation to ongoing research and advances in treatment in the area, with a particular focus on Gaelic games.

This document is intended to be used as a master guideline for all those involved in Gaelic games – players, parents, coaches, match officials, and medics in understanding and managing suspected concussion at all levels of our games. In this document, the Associations **reaffirm their position that if there are any signs leading to a suspicion of a concussion for a player, at any level or any age, the player should be removed immediately from play and not return to action on the same day** (the impact itself may on occasion be considered an indicator in this context, even in the absence of any immediate symptoms).

The player should be medically assessed by an appropriately qualified medical person, monitored for injury-related signs and symptoms, and not return to full contact play without prior medical approval – **RECOGNISE AND REMOVE** is the key message. In fact, research has shown that by withdrawing a player from play immediately following a potential concussive impact, this reduced players' recovery time when compared with those who remained in games and required a longer spell out of action before making a full recovery.

This document sets out the GAA, LGFA and Camogie Association Guidelines in relation to Concussion Management. The following recommendations are not protocols or a clinical standard of care.

SUMMARY PRINCIPLES

CONCUSSION OVERVIEW

- Concussion is a brain injury which results in a disturbance of brain function and can be caused by direct or indirect contact to the player's head or body. It needs to be taken seriously to protect the short and long-term health and welfare of all players.
- There are many symptoms of concussion, with common ones being – headache, dizziness, memory disturbance or balance problems. Loss of consciousness occurs in less than 10% of concussions and is not a requirement in diagnosing a concussion.
- It should be noted that the symptoms of concussion can present at any time but typically become evident in the first 24-48 hours following a head injury.
- Athletes with a history of two or more concussions within the past year are at greater risk of further brain injury and slower recovery and should seek medical attention from practitioners experienced in concussion management before returning to play.
- Concussion is an issue that affects many sports, and it is important that everyone involved in Gaelic games **RECOGNISES** the symptoms of concussion and **REMOVES** from playing or training any player with clear or suspected signs or symptoms.
- If there are any signs leading to the suspicion of concussion, a player should be removed immediately from the field of play pending a full medical assessment by a qualified health care professional (the impact itself may on occasion be considered an indicator even in the absence of any immediate symptoms). The player should be monitored for injury-related signs and symptoms, including deterioration of their clinical condition. A player suspected of sustaining/having sustained a concussion should not return to play on the same day. Subsequently a satisfactory, supervised return to play protocol must be completed, followed by medical approval, prior to return to play - **RECOGNISE AND REMOVE!**
- If a neck injury is suspected, the player should only be removed by emergency healthcare professionals with appropriate spinal care training.
- If ANY of the following are reported, then the player should be transported for urgent medical assessment at the nearest hospital – severe neck pain, deteriorating consciousness, increasing confusion or irritability, repeated vomiting, unusual behaviour changes, seizures, double vision, weakness or tingling/burning in arms or legs.
- Updated Concussion Education & Assessment Resources for Gaelic games can be accessed here - <https://learning.gaa.ie/concussion>

RECOGNISE AND REMOVE!

CONCUSSION ASSESSMENT

- A Concussion Assessment involves the use of an assessment tool, such as the **Sports Concussion Assessment Tool (6th Edition)/VOMS** to support the clinical diagnosis of concussion by a medical practitioner or health care professional.
- Where a suspected concussion has occurred and an appropriately medically trained person is present, the player should be removed from play and the SCAT 6 Assessment/other appropriate Assessment should be administered off-field. It takes approximately 10-12 minutes to conduct correctly. The qualified health care professional should utilize their clinical judgement to assess the possibility of a concussion during Gaelic games activities.
- Please note that the SCAT 6 Assessment is used for evaluating persons aged 13 and over. For children aged 8 to 12, medically trained personnel should use the Child SCAT 6 Assessment. Please note that if you are not a qualified health care professional, please use the **Concussion Recognition Tool 6 (CRT 6)** and not the SCAT 6 or the Child SCAT 6.
- Follow-up re-evaluation is recommended and the use of the **SCOAT 6 (Sports Concussion Office Assessment Tool)** and Child SCOAT 6 can assist with such assessment from 72-hour post-injury.
- Where a **suspected** concussion has occurred (**recognition of any one of a number of possible signs and/or symptoms**) and no medically trained person is present, the player should be removed from the field of play and not return on the same day. The player should be referred for medical assessment. In this regard, Players, Club Officials, Coaches and Match Officials should become familiar with the **Concussion Recognition Tool 6 (CRT 6)**, contained within the Appendix of this document.
- Concussion **diagnosis** is a clinical judgement – Use of the SCAT 6/VOMS assessment tools can aid the qualified health care professional in his/her diagnosis. The SCAT 6 should not be used by itself to make, or exclude, the diagnosis of concussion. It is important to note that an athlete may have a concussion even if their SCAT 6 Assessment result is within normal limits.
- There is considerable evidence for the use of vestibular ocular motor screening assessment (VOMS) as a sensitive and specific tool to aid in detection of concussion and should be considered for use by team doctors/medics. For more detailed information on VOMS please click [HERE](#).



CONCUSSION RECOVERY

- Athletes with suspected or diagnosed concussion should **NOT** take medications such as aspirin or other anti-inflammatories, sedatives or opiates, drink alcohol or use recreational drugs, and should not drive a motor vehicle until cleared to do so by a health care professional.
 - Concussion is an evolving injury – signs and symptoms may evolve over time. It is important to monitor the athlete for ongoing, worsening, or the development of additional concussion-related symptoms.
 - The best available evidence shows that recommending strict rest until the complete resolution of concussion-related symptoms is not beneficial following Sport Related Concussion. **Relative (not strict) rest**, which includes activities of daily living and reduced screen time, should be enacted immediately and for up to the first 2 days after injury.³⁰ Individuals can return to light-intensity physical activity (PA), such as walking that does not more than mildly exacerbate symptoms, during the initial 24–48 hours following a concussion.³⁰
 - Facilitating a **RETURN TO LEARN (RTL)** strategy is a vital part of the recovery process for student-athletes. Health Care Professionals should work with stakeholders on education and school policies to facilitate academic support, including accommodations/learning adjustments for students who have suffered a sports related concussion when required. Not all athletes will need an RTL strategy or academic support. If symptom exacerbation occurs during cognitive activity or screen time, or difficulties with reading, concentration, memory, or other aspects of learning are reported, clinicians should consider an implementation of an RTL strategy at the time of diagnosis and during the recovery process. It can begin following an initial period of relative rest (Step 1 – at least 48 hours), with an incremental increase in cognitive load (Stages 2-4). While the RTL and RTS (below) strategies can exist in parallel, student athletes should complete a full RTL before an unrestricted RTS. Further details around specific Return to Learn strategies are available within the supplementary SCAT 6 document.
 - **GRADUATED RETURN TO SCHOOL STRATEGY** – Concussion may affect the ability to learn in school. The child may need to miss a few days of school after a concussion, but the child's doctor should help them get back to school after a few days. When going back to school, some children may need to go back gradually, and may need to have some changes made to their schedule so that symptoms don't worsen. If a particular activity makes symptoms worse, the child should stop that activity and rest until symptoms get better. To make sure that the child can return to school without any issues, it is important that the health care professional, parents/caregivers, and teachers communicate effectively with each other.
 - **RETURN TO SPORT (RTS)** participation after a concussion follows a graduated stepwise strategy (contained within the SCAT 6 Supplementary Instruction). RTS occurs in conjunction with a Return to Learn Strategy (RTL) and must be conducted under the supervision of a suitably qualified health care professional.
- Following an initial period of relative rest (**Step 1**), clinicians can implement **Step 2** of the RTS Strategy as a treatment for concussion. The athlete may then advance to **Steps 3-6** on a time course dictated by symptoms, cognitive function, clinical findings, and clinical judgement. Clinicians and athletes can typically expect a minimum of 15 days to complete the full rehabilitation strategy, but a

typical unrestricted Return to Sport can take up to one-month post-concussion. The time frame to Return to Sport can vary based on individual characteristics, age and sex necessitating an individualized approach to clinical management. Medical determination of readiness to return to at-risk activities should occur prior to any activities at risk of contact, collision or fall. Further details around specific Return to Sport strategies are available within the supplementary SCAT 6 document.

RETURN TO SPORT TIMELINES

Step 1	Minimum 2 days
Steps 2A	Minimum 2 days
Steps 2B	Minimum 2 days
Steps 3	Minimum 2 days
Step 4	Minimum 3 days
Step 5	Minimum 3 days
Step 6	Day 15 at a minimum

Medical clearance required prior to **Step 5**

- Athletes may continue/advance the duration and intensity of Physical Activity or prescribed aerobic exercise provided there is no more than mild (increase of no more than 2 points vs the pre-exercise value) and brief (<1hour) exacerbation of their concussion-related symptoms.
- Physical Activity/exercise and cognitive exertion should be stopped if concussion symptom exacerbation is more than mild and brief and may be resumed once symptoms have returned to the prior level. Clinicians should inform their patients that mild symptom exacerbation during PA, prescribed aerobic exercise treatment or during cognitive activity is typically brief (under an hour) and does not delay recovery. Prescribed sub-symptom threshold aerobic exercise within 2-10 days of SRC is effective for reducing the incidence of persisting symptoms after concussion (symptoms >1month) and is also effective for facilitating recovery in athletes suffering from symptoms lasting longer than 1month. ³⁴

- Importantly, individuals should be advised to avoid the risk of reinjury (i.e., contact, collision or fall) until determined by a qualified HCP to be safe for higher risk activities. ³⁰
- In recent years, there is evidence to suggest that female players can be more susceptible to concussion.
- There is also evidence to suggest that recovery can take longer, and female athletes can also be more prone to second impact syndrome, which is potentially fatal, in particular during adolescence. In the interest of their long-term welfare, Camogie and Ladies' Football players are advised to follow the GRTP protocol for female players. Players must receive medical clearance (from an appropriately qualified medical person) before returning to full contact training. Adult female players should not return to full contact training/matches for at least 15 days from when the injury has first been diagnosed. All players under the age of 18 should not return to full contact training/matches for at least 21 days from the injury has first been diagnosed.
- The vast majority of players can be managed locally by a suitably qualified health care professional.
- Players with prolonged symptoms (greater than 10-14 days for all players, players with recurrent injuries or experiencing educational difficulties) should be referred to an appropriate specialist or multidisciplinary clinic.
- All coaches should be made aware by players and/or parents if a player under their care has received a concussion in another sport/event. In children and adolescents, there is a risk of catastrophic injury from second impact syndrome if players are returned to play before they are recovered from concussion.

Reference

Dick, R.W (2009) Is there a gender difference in concussion incidence and outcomes? Br J Sports Med; May 43 Suppl 1:i46-50. DOI; 10.1136/bjsm.2009.058172.

SIGNS *and* SYMPTOMS

Contrary to popular belief, most (over 90%) concussions occur without a loss of consciousness and so it is important to recognise the other signs and symptoms. Concussion must be recognised as an evolving injury in the acute stage. Some symptoms may develop immediately while other symptoms may appear gradually over time. Monitoring of players - minutes, hours, and days - after the injury is therefore an important aspect of concussion management.

Diagnosis of acute concussion should involve the following:

1. Player's subjective report of his/her symptoms.
2. Observation of the player for physical signs of concussion.
3. Assessment of the player for cognitive change or decline.
4. Observation of players for behavioural change.
5. Players' report of any sleep disturbance.

It is well recognized in sports medicine that concussion is among the most complex injuries to diagnose, assess and manage. This is compounded by the fact that there is no perfect diagnostic tool or method for an immediate diagnosis. Clinical diagnosis remains the gold standard. The SCAT 6/VOMS tools can be used to support the clinical diagnosis of a healthcare professional. These should not be used as stand-alone methods to diagnose concussion, measure recovery, or make decisions about an athlete's readiness to return to play. They are multi-modal assessment tools for use by healthcare professionals to support their clinical assessment and include immediate assessment steps and off field assessment steps.

CONCUSSION ASSESSMENT DOMAINS	
INDICATORS	WHAT YOU WOULD EXPECT TO SEE
SYMPTOMS	Headaches, Dizziness, Feeling "in a fog", Player just "does not feel right", Fatigue, Sensitivity to light or noise.
PHYSICAL SIGNS	Loss of consciousness/vomiting, Vacant facial expression, Clutching head, Poor balance/lack of coordination, Slurred speech.
COGNITIVE IMPAIRMENT	Loss of short-term memory, Difficulty with concentration, Decreased attention, Diminished work performance.
BEHAVIOURAL CHANGES	Irritability, Anger, Mood Swings, Feeling nervous or anxious, Sadness or depression, Withdrawal.
SLEEP DISTURBANCE	Drowsiness, Difficulty falling asleep.

PITCH ASSESSMENT

INITIAL MANAGEMENT OF A CONCUSSION INJURY

Knowledge of a player's history (has the player suffered a concussion previously?), visualizing the impact and performing an examination may provide invaluable information.

The player should be ideally assessed by a doctor on the field using standard emergency management principles. Particular attention should be given to excluding a cervical spine injury.

If no doctor is present, the player should be assessed by a registered healthcare practitioner (e.g., Physiotherapist/ Nurse) on the field using standard emergency management principles. Particular attention should be given to excluding a cervical spine injury.

If no healthcare practitioner is available, the player should be removed from practice or play and urgent referral to a doctor is required. If there is a possibility of a potential neck or cervical spine injury the player should not be moved, and an ambulance should be called immediately.

While the diagnosis of concussion is a clinical judgement, made by a suitably qualified medical person on an individual basis, there are **RED FLAGS** that mandate the immediate removal of a player to receive urgent medical attention/request for an ambulance -

- ❗ Loss of consciousness
- ❗ Deteriorating conscious state
- ❗ Seizure or convulsions
- ❗ Increasingly restless, agitated, or combative
- ❗ Vomiting
- ❗ Double Vision
- ❗ Disorientation/ Confusion/Amnesia
- ❗ Severe or increasing headache
- ❗ Abnormalities of balance, gait, or coordination
- ❗ Slurred or incoherent speech
- ❗ Weakness or numbness/tingling in more than one arm or leg
- ❗ Visible deformity of the skull
- ❗ Glasgow Coma Scale <15
- ❗ Neck pain or tenderness

If there is a possibility of a potential neck or cervical spine injury the player should not be moved, and an ambulance should be called immediately.

Once these first aid issues are addressed, an assessment of the concussive injury should include clinical judgment and the use of a Sports Concussion assessment tool such as the SCAT 6/VOMS.

If there is a clinical suspicion regarding a suspected head injury or additional time is required for further assessment, the player should be substituted by informing the referee.

If a temporary substitution is made for a suspected Head Injury, the injured player should not return to play in that fixture unless a Team Doctor who is familiar with acute / pitch side assessment of suspected concussion is present to assess the player off-field, in a suitable environment using recognized Sports Concussion Assessment tools such as the SCAT 6 +/- VOMS and this assessment deems the player fit to return to the field of play. If the Team Doctor deems that the player has not suffered a concussion following the immediate off-field assessment and deems the player fit to return to the field of play,

as an additional safety protocol, the player must have a follow-up medical assessment directly within 3 hours of the match ending and again 48-72 hours after the match. This takes into account the chance of a late presentation of concussion.

The player should NOT be left alone for 24 hours following the injury. The player should not drive, take alcohol or any medication unless prescribed by a doctor. Regular observation for deterioration is essential over the initial 24 hours following injury.

There is a need to recognise that the appearance of symptoms might be delayed by several hours following a concussive episode. For example, there may be no forgetfulness (retrograde amnesia) present at 0 mins post injury, yet forgetfulness (amnesia) may be present at 10 mins post injury.

Re-evaluation is an important facet in concussion management in the sub-acute phase which typically is from day 3 post injury. Sports Concussion Office Assessment Tool 6 (SCOAT6) and Child SCOAT6 (age 8 to 12) are designed to help assist the clinician in this phase of management.

Note: Orientation tests (i.e., name, place, and person) have been shown to be an unreliable cognitive function test in a sporting situation.

SPORTS CONCUSSION ASSESSMENT TOOLS

FOR USE BY MEDICAL PROFESSIONALS ONLY

While the diagnosis of concussion is a clinical judgement made by a medical professional, the SCAT 6 provides a standardized tool which can be used for assessing an injured player aged 13 years or older for concussion (the Child SCAT 6 can be used for children aged 8 to 12). The SCAT 6 is designed for use by registered medical practitioners and other clinical personnel that have received appropriate training to use the SCAT 6.

It is recognised that the SCAT 6 should not be used solely to make or exclude the diagnosis of concussion in the absence of clinical judgement. An athlete may have a concussion even if their SCAT 6 returns a normal reading. Clinical diagnosis remains the gold standard as there is no perfect diagnostic tool or method for an immediate diagnosis of concussion.

The SCAT 6 is a multi-modal assessment tool designed to support the clinical assessment of medical practitioners and healthcare professionals. It includes steps around immediate assessment/neuro screening and steps around off-field assessment.

Any player with a suspected concussion should be removed from play, medically assessed, monitored for deterioration, and should not drive a motor vehicle until cleared to do so by a registered medical practitioner.

The SCAT 6 takes between 10-15 minutes to perform correctly. The SCAT 6 is intended to be used in the acute phase, ideally within 72 hours (3 days) and up to 7 days following injury. If more than 7 days have passed since the injury occurred, consider using the SCOAT 6/Child SCOAT 6 Assessment tool (available on the Concussion Education Section of the Gaelic games Tobar Learning site).

The Concussion Recognition Tool 6 (CRT 6) is an educational resource which can be used to aid coaches, managers and match officials in the recognition of the signs and symptoms of concussion.

The SCAT 6, CRT 6, Child SCAT 6 and other resources, for both medical and non-medical personnel, can be accessed via the Gaelic games Tobar Learning Site here - <https://learning.gaa.ie/concussion>

BASELINE TESTING – Pre-season baseline testing with the SCAT 6 or other assessment tools (VOMS/ImPACT/Neurocognitive Test) can be helpful for interpreting post-injury test scores, but it is not required for that purpose. Taking part in baseline testing also provides an additional educational opportunity to discuss the significance of this injury with athletes, subject to the availability of resources to assist in the delivery of this within a Gaelic games unit.

VESTIBULAR OCULAR MOTOR SCREENING VOMS

**FOR USE BY MEDICAL
PROFESSIONALS ONLY**

WHAT IS THE VOMS TEST?

VOMS is a tool designed to detect the signs and symptoms of a concussion. It stands for vestibular ocular motor screening and looks at the systems in charge of integrating balance, vision, and movement. The VOMS test needs little equipment — just a tape measure and a metronome. It is a reliable and consistent tool for concussion diagnosis when combined with:

- **A clinical interview.**
- **Symptom assessment.**
- **Computerized neurocognitive testing.**

HOW DOES THE VOMS TEST WORK?

The screening tests for five areas of vestibular (balance) and ocular (vision) motor impairment:

- **Smooth pursuits**
- **Rapid eye movements**
- **Near point of convergence**
- **Balance vision reflex**
- **Visual motion sensitivity**

The VOMS test takes 5 to 10 minutes and can be used to enhance the detection of problems such as balance and vision motors issues.

Further Information on the VOMS test is available via the links below:

[VOMS Test description and Demonstration Video](#)

[VOMS Test Assessment Guide and Results Table](#)

[Additional VOMS Test Demonstration Video](#)

RETURN *To* SPORT

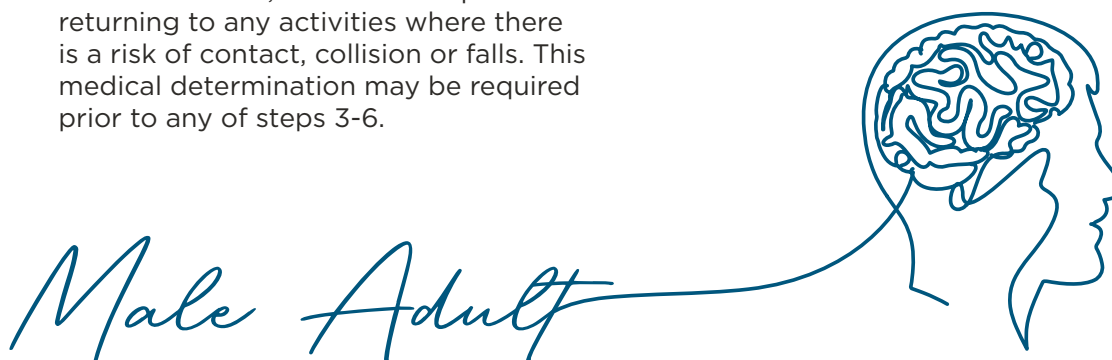
STRATEGY

A player with a suspected concussion should be REMOVED from play, medically assessed and monitored for injury-related signs and symptoms. No player diagnosed with concussion should return to play on the day of an injury.

Return to Sport participation after a Sports' Related Concussion follows a graduated stepwise strategy. RTS occurs in conjunction with a Return to Learn strategy (RTL) and under the supervision of a qualified health care practitioner. Clinicians and athletes can expect a minimum of 15 days for adults, and 21 days for players under the age of 18 to complete the full rehabilitation strategy, but a typical RTS strategy can take up to one month post-concussion. The time frame for RTS varies based on individual characteristics, which requires an individualised approach to clinical management.

- An initial period of relative rest and reduced screen time (at least 2 days), followed by symptom-limited activity forms **Step 1** of the RTS strategy. This can involve daily activities that do not exacerbate symptoms (e.g., walking), with the goal of beginning the gradual reintroduction of work or school.
- Clinicians can then implement **Step 2A** (light – up to a maximum of 55% heart rate) and **Step 2B** (moderate – up to a maximum of 70% heart rate) as they deem appropriate. The goal of this stage is to gradually increase the heart rate through activities such as stationary cycling or walking at a slow to medium pace. Any activity at this stage should not result in more than mild [increase of no more than 2 points vs the pre-exercise value) and brief (<1hour) exacerbation of their concussion-related symptoms]. Steps 2A and 2B should be undertaken for a minimum of 2 days each for adults.
- The player may then advance to steps 3-6 on a time course dictated by symptoms, cognitive function, clinical findings, and clinical judgement. **Step 3** involves a return to sport-specific exercise. If any of these exercises involve a risk of head-impact, medical determination of readiness is required to proceed. These activities should come with the goal of adding movement and directional changes to the rehabilitation programme. Step 3 should be undertaken for a minimum of 2 days for adults.
- Athletes may be moved into the later stages of the strategy that involve the risk of head impact following authorization by the health care practitioner and after the resolution of any new symptoms, abnormalities in cognitive function and based on clinical findings related to the current concussion.
- **Step 4** involves the return to non-contact training drills, allowing the player to exercise to a high intensity, including more challenging drills. The goal of this stage is to resume the usual intensity of exercise, coordination, and increased thinking. Step 4 should be undertaken for a minimum of 3 days for adults.
- **Step 5** allows for the return to full contact practice and allows the player to resume participation in normal training activities. The goal of this step is to allow the players to restore their confidence following the concussion and to allow assessment of their functional skill sets by coaches. Medical clearance is required prior to a return to full contact training. Step 5 should be undertaken for a minimum of 3 days for adults.
- **Step 6** involves a full return to sport and normal game play by the athlete. Step 6 should be undertaken after a minimum of 15 days for adults.

- It should be noted that players who are having difficulty progressing through the RTS strategy may benefit from rehabilitation and/or the involvement of a multidisciplinary team of health care practitioners experienced in managing sports' related concussion. Medical determination of readiness, including psychological readiness, to return to at-risk activities, should occur prior to returning to any activities where there is a risk of contact, collision or falls. This medical determination may be required prior to any of steps 3-6.
- There may also be cases where due to severity of initial symptoms post injury, individual personal risk factors or past concussion history, early access to Clinicians experienced in concussion management may be advisable prior to embarking on a return to sport pathway.



STRATEGY	ACTIVITY AT EACH STEP	GOAL
1. Symptom-limited activity minimum 2 days (day 0-2).	Daily activities that do not exacerbate symptoms (e.g., walking).	Gradual reintroduction.
2A. Aerobic exercise light minimum 2 days (day 3-4).	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation of concussion symptoms.	Increase Heart Rate.
2B. Aerobic exercise moderate minimum 2 days (day 5-6).		
3. Individual sport specific exercise minimum 2 days (day 7-8).	Sport-specific training away from the team environment (e.g., running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact.	Add movement, change of direction.
4. Non-contact training minimum 3 days (9-11).	Medical Clearance required prior to full contact training. Exercise to high intensity including more challenging training drills (e.g., passing drills, multiplayer training). Can integrate into the team environment.	Resume usual intensity of exercise, coordination, and increased thinking.
5. Contact training minimum 3 days (day 12-14).	Medical clearance required prior to return to full contact training. Participate in normal training activities.	Restore confidence and assess functional skills by coaching staff.
6. Return to play (day 15).	Normal game play.	Return to competitive action.

G RTP for all female players



STRATEGY	ACTIVITY AT EACH STEP	GOAL
1. Symptom-limited activity minimum 2 days (day 0-2).	Daily activities that do not exacerbate symptoms (e.g., walking).	Gradual reintroduction.
2A. Aerobic exercise light minimum 2 days (day 3-4). 2B. Aerobic exercise moderate minimum 2 days (day 5-6).	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation of concussion symptoms.	Increase Heart Rate.
3. Individual sport specific exercise minimum 2 days (day 7-8).	Sport-specific training away from the team environment (e.g., running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact.	Add movement, change of direction.
4. Non-contact training minimum 3 days (9-11).	Medical Clearance required prior to full contact training. Exercise to high intensity including more challenging training drills (e.g., passing drills, multiplayer training). Can integrate into the team environment.	Resume usual intensity of exercise, coordination, and increased thinking.
5. Contact training minimum 3 days (day 12-14).	Medical clearance required prior to return to full contact training. Participate in normal training activities.	Restore confidence and assess functional skills by coaching staff.
6. Return to play (day 15).	Normal game play.	Return to competitive action.

G RTP for players under the age of 18

STRATEGY	ACTIVITY AT EACH STEP	GOAL
1. Symptom-limited activity minimum 2 days (day 0-2).	Physical and Cognitive Rest.	Recovery.
2A. Aerobic exercise light minimum 4 days (day 3-6). 2B. Aerobic exercise moderate minimum 4 days (day 7-10).	Walking, swimming, cycling, keeping intensity <70% maximum permitted heart rate - (If Activity does worsen symptoms or bring on further symptoms return to previous stage. If no symptoms progress to next stage).	Increase Heart Rate.
3. Individual sport specific exercise minimum 4 days (day 11-14).	Running drills - (If Activity does worsen symptoms or bring on further symptoms return to previous stage. If no symptoms progress to next stage).	Add Movement.
4. Non-contact training minimum 3 days (15-17).	Progress to more complex training drills-passing drills, progressive resistance training - (If Activity does worsen symptoms or bring on further symptoms return to previous stage. If no symptoms progress to next stage).	Exercise, coordination, and cognitive load.
5. Contact training minimum 3 days (day 18-20).	Following medical clearance, participate in normal training activities. (If Activity does worsen symptoms or bring on further symptoms return to previous stage. If no symptoms progress to next stage).	Restore confidence and assess functional skills by coaching staff.
6. Return to play (day 21).	Normal game play.	Return to competitive action.

- Athletes having difficulty progressing through the RTS strategy or with symptoms and signs that are not progressively recovering beyond the first 2-4 weeks may benefit from the rehabilitation and/or involvement of a multi-disciplinary team of health care professionals experienced in managing sports' related concussion.
- In children and adolescents, there is a risk of catastrophic injury from second impact syndrome if players are returned to play before they are recovered from concussion.

GRADUATED RETURN TO SCHOOL STRATEGY

Concussion may affect the ability to learn at school. Initially, the player may need to miss a few days of school, followed by a gradual return, avoiding activities that exacerbate symptoms.

MENTAL ACTIVITY	ACTIVITY AT EACH STEP	GOAL
1. Daily activities that do not give the athlete symptoms	Typical activities that the athlete does during the day as long as they do not increase symptoms (e.g., reading, texting, screen time). Start with 5-15 minutes at a time and gradually build up.	Gradual return to typical activities.
2. School activities	Homework, reading or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work.
3. Return to school full-time	Gradual introduction of schoolwork. May need to start with a partial school day or with increased breaks during the day.	Increase academic activities.
4. Return to school full-time	Gradually progress school activities until a full day can be tolerated.	Return to full academic activities and catch up on missed work.

To minimise academic and social disruptions during the RTL strategy, HCPs should avoid recommending complete rest and isolation, even for the initial 24-48 hours, and instead recommend a period of relative rest. Early return to activities of daily living should be encouraged provided that symptoms are no more than mildly and briefly increased (i.e., an increase of no more than 2 points on a 0-10 point scale for less than an hour). In consultation with educators, and accounting for social determinants of health, some students may be offered academic supports to promote RTL including:

- **ENVIRONMENTAL ADJUSTMENTS**, such as modified school attendance, frequent rest breaks from cognitive/thinking/deskwork tasks throughout the day and/or limited screen time on electronic devices.
- **PHYSICAL ADJUSTMENTS** to avoid any activities at risk of contact, collision or falls, such as contact sports or game play during physical education classes or after-school activities, while allowing for safe non-contact PA (e.g., walking).
- **CURRICULUM ADJUSTMENTS**, such as extra time to complete assignments/homework and/or preprinted class notes.
- **TESTING ADJUSTMENTS**, such as delaying tests/quizzes and/or permitting additional time to complete them.⁴¹

FACTORS THAT INFLUENCE THE INVESTIGATION AND MANAGEMENT OF CONCUSSION

A range of ‘modifying’ factors may influence the investigation and management of concussion and, in some cases, may predict the potential for prolonged or persistent symptoms. Examples of modifiers would be children and adolescents under the age of 18 or players with previous concussions. Medical personnel should be mindful of these modifiers when managing a player’s concussive injury.

Most players with concussion can be managed locally. Players with prolonged symptoms (over 10 days), players with intractable symptoms or experiencing difficulty returning to education will require a referral to an appropriate specialist. The following factors predispose to or influence the course of a concussive episode.

CONCUSSION MODIFIERS	
FACTORS	MODIFIERS
SYMPTOMS	Number, Duration(>10days), Severity.
SIGNS	Prolonged loss of consciousness (LOC) (>1 min), Amnesia.
SEQUELAE	Concussive convulsions.
TEMPORAL	Frequency – repeated concussions over time. Timing – injuries close together in time. ‘Recency’ – recent concussion or traumatic brain injury.
THRESHOLD	Repeated concussions occurring with progressively less impact force or slower recovery after each successive concussion.
AGE	Child and adolescent (<18 years).
COMORBIDITIES AND PREMORBIDITIES	Migraine, depression or other mental health disorders, attention deficit hyperactive disorder (ADHD), learning disabilities (LD), sleep disorders, vestibular disorder (e.g., motion sickness), pre-existing oculo-motor dysfunction.
MEDICATION	Psychoactive drugs, anticoagulants.
BEHAVIOUR	Dangerous style of play.
SPORT	High risk activity, contact with collision sport, high sporting level.

HELPING PLAYERS COPE WITH A CONCUSSION INJURY

Players often feel tired and may experience difficulties at work or school when carrying out a task which requires concentration. Players may also encounter mood difficulties and feel depressed, anxious, or irritable with family or teammates. The following actions can help players cope:

- Once symptoms initially resolve a light exercise programme (See GRTP) appears to speed up recovery.
- Support should be provided to players during this recovery period. Parents, Coaches and Team-mates should reassure the player to follow the recovery protocols and ask the player if he/she has any questions or concerns regarding the injury. The player should be included in social activities which do not put the player at risk of a further concussion.
- Alcohol should be avoided as it may delay recovery and put the player at increased risk of further injury.
- Minimise exposure to TV, PC, Laptops, Smartphone, Tablet, Video Games etc. These items should be avoided two hours before sleep as they can cause sleep disturbance.
- Sleep disturbance is common and hence restoring normal sleep patterns and Circadian rhythms is essential. Napping is generally not recommended during recovery from concussion, as it can disrupt the circadian cycle of sleep and wakefulness.
- Attention to hydration and nutrition is important (dehydration exacerbates and prolongs headaches and other symptoms).
- When dealing with persistent symptoms, it is essential that players only take medications prescribed by their doctor.
- Recovery from concussion should not be rushed nor pressure applied to players to resume playing until recovery is complete. The risk of re-injury is high and may lead to recurrent concussion injuries. – “It is better to have missed one game than the whole season.”
- Remember In children and adolescents, there is a risk of catastrophic injury from second impact if players are returned before they have recovered.

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CONCUSSION RECOGNITION TOOL 6@

To be used by non-medically trained individuals for the identification and immediate management of suspected concussion. The CRT 6 is not designed to diagnose concussion. RECOGNISE & REMOVE!

RED FLAGS CALL AN AMBULANCE

If ANY of the following signs are observed or complaints are reported after an impact to the head or body, the player should be immediately removed from the play/game/activity and transported for urgent medical care by a healthcare professional -

-  **Neck pain or tenderness.**
-  **Seizure, “fits”, or convulsion.**
-  **Loss of vision or double vision.**
-  **Loss of consciousness.**
-  **Increased confusion or deteriorating conscious state (becoming less responsive, drowsy).**
-  **Weakness or numbness/tingling in more than one arm or leg.**
-  **Repeated vomiting.**
-  **Severe or increasing headache.**
-  **Increasingly restless, agitated, or combative.**
-  **Visible deformity of the skull.**

REMEMBER

- In all cases, the basic principles of first aid should be followed – assess danger at the scene, check airway, breathing, circulation, look for reduced awareness of surroundings or slowness/difficulty in answering questions.
- Do not attempt to move the player (other than required for airway support) unless trained to do so.
- Do not remove a helmet or any other equipment unless trained to do so safely.
- Assume a possible spinal cord injury in all cases of head injury.
- Athletes with known physical or developmental disabilities should have a lower threshold for removal from play.

If there are no Red Flags, identification of suspected concussion should proceed as follows – Concussion should be suspected after an impact to the head or body when the player seems different than usual. Such changes include the presence of any one or more of the following:

- Visible clues of concussion
- Signs & Symptoms (such as headache or unsteadiness)
- Impaired brain function (e.g., confusion)
- Unusual behaviour



VISIBLE CLUES OF SUSPECTED CONCUSSION

Loss of consciousness
or responsiveness.

Lying motionless on the
playing surface.

Falling unprotected to
the playing surface.

Disorientation or confusion,
staring or limited responsiveness,
or an inability to respond
appropriately to questions.

Dazed, blank, or vacant look.

Seizure, fits or convulsions.

Slow to get up after a direct
or indirect hit to the head.

Unsteady on feet/balance
problems or falling over/poor
coordination/wobbly.

Facial Injury.

SYMPTOMS OF SUSPECTED CONCUSSION

Physical symptoms:

Headache, “pressure in head”,
balance problems, nausea or
vomiting, drowsiness, dizziness,
blurred vision, more sensitive to
light/noise, fatigue or low energy,
“don’t feel right”, neck pain.

Changes in emotions:

More emotional, more irritable,
sadness, nervous or anxious.

Changes in thinking:

Difficulty concentrating &
remembering, feeling slowed
down, feeling like “in a fog.”

REMEMBER

Symptoms may develop
over minutes or hours
following a head injury.

AWARENESS

Failure to answer any of these questions correctly may suggest a concussion.

Questions should be modified appropriately depending on the code and age of the player.

Where are we today?

What game were you participating in?

Who scored last in this game?

What team did you play last week/game?

Did your team win the last game?

PLAYERS WITH SUSPECTED CONCUSSION SHOULD NOT

Be left alone initially (for at least the first 3 hours) Worsening of symptoms should lead to immediate medical attention.

Be sent home by themselves. They need to be with a responsible adult.

Drink alcohol, use recreational drugs or drugs not prescribed by their health care professional.

Drive a motor vehicle until cleared to do so by a health care professional.

ANY ATHLETE WITH A SUSPECTED CONCUSSION SHOULD BE IMMEDIATELY REMOVED FROM PRACTICE OR PLAY AND SHOULD NOT RETURN TO ANY ACTIVITY WITH RISK OF HEAD CONTACT, FALL OR COLLISION INCLUDING SPORTING ACTIVITY UNTIL ASSESSED MEDICALLY, EVEN IF THE SYMPTOMS RESOLVE.

CONCUSSION MANAGEMENT GUIDELINES

FOR GAELIC GAMES

