

# Concussion Management Guidelines for Gaelic Games

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## Concussion Management Guidelines for Gaelic Games

**May 2021**

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Appendix 1: Appendix – Pocket Concussion Recognition Tool

## Introduction

Gaelic Games are contact sports. While collisions occur, they are not the primary focus of our games. The GAA has led the way in concussion awareness and education since the publication of the association's first statement on concussion in 2007. Since the publication of the most recent concussion management guidelines in 2013, extensive education has taken place at all levels of the association through various programmes and initiatives including seminars, workshops, information sheets, posters and an e-learning course available to players, members, administrators, referees, and coaches.

The GAA has been represented at a number of conferences on the subject including the 5th International Consensus Statement in Berlin in 2016. The recent Concussion Symposia, held in Croke Park in 2016 and 2017 in association with Bon Secours Health System and UPMC International have also further increased awareness in relation to ongoing research and advances in treatment in this area.

This document is intended as a master guideline to those involved in the sport and as an assistance to players, coaches, referee's, and medics in understanding and managing suspected concussion at all levels of the game. In this document, the GAA reaffirms its 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 and not return to full contact play without prior medical approval – If In Doubt, Sit Them Out. 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.

## What is Concussion?

**Concussion is a brain injury and can be caused by a direct or indirect hit to the player's head or body. Concussion typically results in an immediate onset of short-lived signs and symptoms. However, in some cases, the signs and symptoms of concussion may evolve over a number of minutes or hours or even days. Concussion must be taken extremely seriously as there is potential for catastrophic brain injury with children and adolescents at most risk.**

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 is a brain injury that needs to be taken seriously to protect the short and long-term health and welfare of all players.
- 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 (the impact itself may on occasion be considered an indicator even in the absence of any immediate symptoms). 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. **If In Doubt, Sit Them Out.**
- **Where a possible concussion has occurred and a Doctor is present, Part 1 of the SCAT 5 Assessment should be used in tandem with clinical judgment to assess the injury.** Following this assessment If a player has sustained a potential concussion injury or the examining Doctor requires additional time to assess the player - the player should be removed from play and assessed off field by notifying the referee & Team management. Further assessment for possible concussion symptoms & signs should include Part 2 SCAT 5 / VOMS assessment.
- **Where a possible has occurred and no Doctor 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 managers, coaches and Match Officials should become familiar with the Concussion Recognition Tool (CRT 5) within the Appendix of this document.
- Concussion diagnosis is a clinical judgement – Use of the SCAT 5 / VOMS assessment tools can aid the doctor in his/her diagnosis.
- There is considerable evidence for use of vestibulo-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 is an evolving injury. It is important to monitor the player after the injury for 24-48 hours.
- Adult male players suspected of having a concussion, must have adequate rest of at least 24 - 48 hours and then must follow a gradual return to play (GRTP) protocol. Players must receive medical clearance (from a doctor) and present to the person in charge of the team before returning to full contact training. Adult male players should not return to full contact training/matches for at least 1 week from when the injury has first been diagnosed. (The GRTP should take at least 7 days for adult players)
- Male players under the age of 18 suspected of having a concussion must rest for a minimum of 48 hours and then must follow a GRTP protocol. Players must receive written medical clearance (from a doctor) and present to the person in charge of the team before returning to full contact training. Male players under the age of 18 should not return to full contact training/matches for at least 2 weeks from when the injury has first been diagnosed. (It is recommended that the GRTP should take at least 14 days for players under the age of 18.)
- Over the past decade, 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 (Dick, 2009; Collins & Kontos, 2016). 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 a doctor) and present to the person in charge of the team before returning to full contact training. Female players of any age should not return to full contact training/matches for at least 2 weeks from when the injury has first been diagnosed. (It is recommended that the GRTP should take at least 14 days for all female players, regardless of age.)
- A graduated return to school/education strategy is also necessary. Communication between the doctor, parents and teachers is essential so that a flexible individualised plan allowing incremental progression from daily activities, school activities, return to school part time and return to school full time be implemented. No player should return to competitive sporting activity prior to being cleared to return to school.
- The vast majority of players can be managed locally by a doctor with the necessary skill sets.
- A minority of 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.

## 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.

## CONCUSSION ASSESSMENT DOMAINS

INDICATORS	WHAT YOU WOULD EXPECT TO SEE
<b>Symptoms</b>	<ul style="list-style-type: none"> <li>○ Headaches</li> <li>○ Dizziness</li> <li>○ Feeling in a 'fog'</li> <li>○ Player just does not 'feel right'</li> <li>○ Fatigue</li> <li>○ Sensitivity to light or noise</li> </ul>
<b>Physical Signs</b>	<ul style="list-style-type: none"> <li>○ Loss of consciousness Vomiting</li> <li>○ Vacant Facial Expression</li> <li>○ Clutching Head</li> <li>○ Poor Balance / loss of coordination</li> <li>○ Slurred speech</li> </ul>
<b>Cognitive Impairment</b>	<ul style="list-style-type: none"> <li>○ Loss short term memory</li> <li>○ Difficulty with concentration</li> <li>○ Decreased attention</li> <li>○ Diminished work performance</li> </ul>
<b>Behavioural Changes</b>	<ul style="list-style-type: none"> <li>○ Irritability</li> <li>○ Anger</li> <li>○ Mood Swings</li> <li>○ Feeling Nervous or Anxious</li> <li>○ Sadness or Depression</li> <li>○ Withdrawal</li> </ul>
<b>Sleep Disturbance</b>	<ul style="list-style-type: none"> <li>○ Drowsiness</li> <li>○ Difficulty Falling Asleep</li> </ul>

## 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 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 (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 called immediately.
- While the diagnosis of concussion is a clinical judgement, made by a doctor on an individual basis, there are red flags that mandate the urgent removal of a player to urgent medical attention/request for an ambulance:

• Prolonged Loss of consciousness
• Deteriorating conscious state
• Convulsions or tonic posturing
• Increasingly restless, agitated, or combative
• Vomiting
• Double Vision
• Disorientation/Confusion
• Severe or increasing headache
• Abnormalities of balance, gait, or coordination
• Slurred or incoherent speech
• Weakness or tingling/burning in arms or legs

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

- **Once the above first aid issues are addressed, an assessment of the concussive injury should include clinical judgement and the use of Sports Concussion assessment tool such as Part 1 of SCAT 5\***.
- If there is a clinical suspicion regarding a possible head injury or additional time is required for further assessment, the player should be substituted by informing the referee.
  - *\*Guidelines may be updated following the International Consensus Conference on Concussion in Sport in Paris (October 2021)*
- If a temporary substitution is made for a possible Head Injury, the injured player should not return to play in that fixture **unless** a Team Doctor who is familiar with acute / pitchside assessment of possible concussion is present to assess the player off-field, in a suitable environment using recognized Sports Concussion Assessment tools such as Part 2 of SCAT 5 or VOMS and this assessment deems the player fit to return to the field of play.
- 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 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.

## **Sports Concussion Assessment Tool 5 (SCAT5) – for use by Medical Professionals only**

While the diagnosis of concussion is a clinical judgment ideally made by a medical professional, the SCAT 5 provides a standardized tool assessing an injured player aged from 13 years and older for concussion. (Child SCAT 5 can be used for children aged 5-13). SCAT 5 is designed for use by registered medical practitioners and other clinical personnel that have appropriate training to use SCAT 5.

It is recognised that the SCAT5 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 SCAT5 is normal. SCAT 5 consists of two parts - the first part is an initial pitch side assessment of injury severity (Concussion signs, Glasgow Coma Scale and Maddocks Score).

The second part of the SCAT 5 assessment consists of symptom checklist, symptom severity, as well as neuro cognitive and balance functions.

The diagnosis of a concussion is a clinical judgement.

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.

In Gaelic games, SCAT 5 can be used to perform a baseline assessment in the medical room/dressing room following removal from play and subsequently at 24 or 48 hours to monitor progress. Reliability is significantly diminished after 3 days.

The SCAT 5 is available at the follow link for use by medical professionals only  
[Sport Concussion Assessment Tool - 5th Edition](#)

The Concussion Recognition Tool 5 (CRT 5) is included as an Appendix to this document.

The CRT 5 tool can be used as an educational tool to aid coaches, managers and match officials to recognize the signs and symptoms of Concussion.

## **Baseline Testing**

Baseline or pre-season NP testing is not yet felt to be required as a mandatory aspect of every assessment; however, it is helpful and adds useful information to the overall interpretation of thesetests. It also provides an additional educative opportunity to discuss the significance of this injury withthe athlete subject to resources available within the county/club. Further details are available [HERE](#)

## **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 in 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 PLAY

A player with a suspected/ concussion **SHOULD NEVER** be allowed to return to play on the day of injury. In addition, return to play must follow a medically supervised stepwise approach and a player **SHOULD NEVER** return to play while symptomatic.

A graded program of exertion prior to medical clearance and return to play (RTP) is generally recommended.

1. There should be an **initial minimum period of 24-48 hours** rest for adult male players post a concussive injury. **This rest period should be a minimum of 48 hours for all female players and male players under the age of 18.**
2. Following this rest period, players can be encouraged to become gradually and progressively more active while staying below their cognitive and physical symptom-exacerbation thresholds (i.e., activity level should not bring on or worsen their symptoms)
3. RTP protocols following concussion follow a stepwise approach. With this stepwise progression, the players should only continue to proceed to the next level if asymptomatic at the current level.
4. If a player fails to progress through the levels, or regresses, they should be referred to an appropriate specialist or multidisciplinary clinic.
5. Generally, for male adults each step should take at least 24 hours so that the athlete would take approximately one week to proceed to full rehabilitation once they are asymptomatic at rest.
6. Generally, for all female players, steps 2-4 (inclusive) should take at least 4 days so that the player would take approximately two weeks to proceed to full rehabilitation once they are asymptomatic at rest.
7. Generally, for all players under the age of 18, steps 2-4 (inclusive) should take at least 4 days so that the player would take approximately two weeks to proceed to full rehabilitation once they are asymptomatic at rest.
8. Adult male players should not return to competitive action/full contact training without medical clearance. This should be at least 1 week from when a diagnosis has been made.
9. Female players should not return to competitive action/full contact training without medical clearance. This should be at least 2 weeks from when a diagnosis has been made.
10. All players under the age of 18 should not return to competitive action/full contact training without medical clearance. This should be at least 2 weeks from when a diagnosis has been made.
11. Medical clearance refers to clearance by a doctor, in writing, is required to be provided to the person in charge of the team prior to return to full contact sports.

## GRTP FOR ADULT PLAYERS

REHABILITATION STAGE	FUNCTIONAL EXERCISE AT EACH STAGE OF REHABILITATION	OBJECTIVE OF EACH STAGE
1. No Activity for 24-48 hours	Physical and Cognitive Rest	Recovery
2. Light Activity (at least 1 day)	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 HR
3. Sports Specific Exercise (at least 1 day)	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. No Contact Training Drills (at least 1 day)	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. Full Contact Practice (at least 1 day)	<b>Following written medical clearance</b> , 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 (Minimum of 7 days since diagnosis)	Normal game play	Return to competitive action.

- *If any increase in/development of further symptoms occur while in the RTP program, then the player should drop back to the previous asymptomatic level and try to progress again after a further 24-hour period of rest has passed. If a player fails to progress or regresses, again, they should be referred on to an appropriate specialist or multidisciplinary clinic.*

## GRTP FOR ALL FEMALE PLAYERS

REHABILITATION STAGE	FUNCTIONAL EXERCISE AT EACH STAGE OF REHABILITATION	OBJECTIVE OF EACH STAGE
1. No Activity for a minimum of 48 hours	Physical and Cognitive Rest	Recovery
2. Light Activity (at least 4 days)	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 HR
3. Sports Specific Exercise (at least 4 days)	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. No Contact Training Drills (at least 4 days)	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. Full Contact Practice (at least 1 day)	<b>Following written medical clearance</b> , 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 (Minimum of at least 15 days since diagnosis)	Normal game play	Return to competitive action.

- *If any increase in/development of further symptoms occur while in the RTP program, then the player should drop back to the previous asymptomatic level and try to progress again after a further 24-hour period of rest has passed.*

## G RTP FOR PLAYERS UNDER THE AGE OF 18

REHABILITATION STAGE	FUNCTIONAL EXERCISE AT EACH STAGE OF REHABILITATION	OBJECTIVE OF EACH STAGE
1. No Activity for a minimum of 48 hours	Physical and Cognitive Rest	Recovery
2. Light Activity (at least 4 days)	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 HR
3. Sports Specific Exercise (at least 4 days)	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. No Contact Training Drills (at least 4 days)	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. Full Contact Practice (at least 1 day)	<b>Following written medical clearance</b> , 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 (Minimum of at least 15 days since diagnosis)	Normal game play	Return to competitive action.

- *If any increase in/development of further symptoms occur while in the RTP program, then the player should drop back to the previous asymptomatic level and try to progress again after a further 24-hour period of rest has passed.*
- *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.*



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## 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 OF EACH STEP
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.

### 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 (adults over 10 days, children more than 4 weeks), players with intractable symptoms or experiencing difficulty returning to education will require referral to an appropriate specialist. The following factors predispose to, or influence the course of a concussive episode.

### CONCUSSION MODIFIERS

FACTORS	MODIFIERS
<b>Symptoms</b>	<ul style="list-style-type: none"> <li>• Number</li> <li>• Duration (&gt;10 days)</li> <li>• Severity</li> </ul>
<b>Signs</b>	<ul style="list-style-type: none"> <li>• Prolonged loss of consciousness (LOC) (&gt;1 min), Amnesia</li> </ul>
<b>Sequelae</b>	<ul style="list-style-type: none"> <li>• Concussive convulsions</li> </ul>
<b>Temporal</b>	<ul style="list-style-type: none"> <li>• Frequency – repeated concussions over time</li> <li>• Timing – injuries close together in time</li> <li>• 'Recency' – recent concussion or traumatic brain injury</li> </ul>
<b>Threshold</b>	<ul style="list-style-type: none"> <li>• Repeated concussions occurring with progressively less impact force or slower recovery after each successive concussion</li> </ul>
<b>Age</b>	<ul style="list-style-type: none"> <li>• Child and adolescent (&lt;18 years)</li> </ul>
<b>Comorbidities and premorbidities</b>	<ul style="list-style-type: none"> <li>• 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</li> </ul>
<b>Medication</b>	<ul style="list-style-type: none"> <li>• Psychoactive drugs, anticoagulants</li> </ul>
<b>Behaviour</b>	<ul style="list-style-type: none"> <li>• Dangerous style of play</li> </ul>
<b>Sport</b>	<ul style="list-style-type: none"> <li>• High risk activity, contact with collision sport, high sporting level</li> </ul>

## 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 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 for 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.

## References

- Collins, M.W., Kontos, A.P. et al (2016). Concussion is Treatable: Statement of Agreement from the Targeted Evaluation and Active Management (TEAM) Approaches to Treating Concussion Meeting held in Pittsburgh, October 15-16, 2015 *Neurosurgery*. 2016 Dec; 79(6): 912–929. DOI; 10.1227/NEU.0000000000001447
- 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/bjism.2009.058172
- Elbin RJ. et al (2016). Removal from play after concussion and recovery time. *Pediatrics*; 2016; 138(3). Epub ahead of print (June 6,2016) DOI: 10.1542/peds.2016-0910
- GAA. (2015) GAA Concussion Management Guidelines (2013-2016). Available at: <http://learning.gaa.ie/concussion>
- Mc Crory, P. et al (2017) Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Berlin, October 2016. *Br J Sports Med*; Published Online First April 26, 2017 DOI:10.1136/bjsports-2017-09769

## Appendix

### **CONCUSSION RECOGNITION TOOL 5@**

To help identify concussion in children, adolescents, and adults.

#### **RECOGNISE & REMOVE**

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

##### **STEP 1: RED FLAGS — CALL AN AMBULANCE**

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

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

##### **Remember:**

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

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

##### **STEP 2: OBSERVABLE SIGNS**

Visual clues that suggest possible concussion include:

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

##### **STEP 3: SYMPTOMS**

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

#### **Athletes with suspected concussion should:**

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

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