# INTERNATIONAL RUGBY BOARD
*Putting players first*

***IRB Concussion Guidelines***

## Summary Principles

- Concussion must be taken extremely seriously to safeguard the long term welfare of Players.
- Players suspected of having concussion must be removed from play and must not resume play in the match.
- Players suspected of having concussion must be medically assessed.
- Players suspected of having concussion or diagnosed with concussion must go through a graduated return to play protocol (GRTP).
- Players must receive medical clearance before returning to play.

## Introduction

The IRB takes Player Welfare seriously and played a central role in the development of the Zurich Consensus (2008) on Concussion in Sport on which these guidelines are based. The guidelines were designed to be used by physicians and other health professionals as well as team management, teachers, parents and Players. The guidelines are meant to ensure that Players who suffer concussion are managed effectively to protect their long term health and welfare. Scientific knowledge in the field of concussion is constantly evolving and the consensus process will make sure that the IRB guidelines will keep pace with these changes.

### What is Concussion?

Concussion is a complex process caused by trauma that transmits force to the brain either directly or indirectly and results in temporary impairment of brain function. Its development and resolution are rapid and spontaneous. A Player can sustain a concussion without losing consciousness. Concussion is associated with a graded set of clinical signs and symptoms that resolve sequentially. Concussion reflects a functional rather than structural injury and standard neuro-imaging is typically normal.

**CONCUSSION MUST BE TAKEN EXTREMELY SERIOUSLY.**

Concussion producing forces are common in Rugby; fortunately most of these do not result in concussion. There is widespread variation in the initial effects of concussion. Recovery is spontaneous often with rapid resolution of signs, symptoms and changes in cognition (minutes to days). This could increase the potential for Players to ignore concussion symptoms at the time of injury or return to play prior to the full recovery from a diagnosed concussion. This may result in a more serious brain injury or a prolonged recovery period. The potential for serious and prolonged injury emphasizes the need for comprehensive medical assessment and follow-up until the concussion has fully resolved. Returning to play before complete resolution of the concussion exposes the Player to recurrent concussions that might take place with ever decreasing forces. We have concerns that repeat concussion could shorten a Player's career and may have some potential to result in permanent neurological impairment. Players must be honest with themselves and medical staff for their own protection.

## What are the signs of Concussion?

The common signs and symptoms indicating that a Player may have concussion are listed below in **Table 1**. If a Player shows any of the signs described in the Table (as a result of a direct blow to the head, face, neck or elsewhere on the body with a force being transmitted to the head) they have suspected concussion.

### Table 1: Common early signs and symptoms of concussion

| Indicator | Evidence |
|---|---|
| **Symptoms** | Headache, dizziness, "feeling in a fog" |
| **Physical signs** | Loss of consciousness, vacant expression, vomiting, inappropriate playing behaviour, unsteady on legs, slowed reactions |
| **Behavioural changes** | Inappropriate emotions, irritability, feeling nervous or anxious |
| **Cognitive impairment** | Slowed reaction times, confusion/disorientation, poor attention and concentration, loss of memory for events up to and/or after the concussion |
| **Sleep disturbance** | Drowsiness |

# Stage 1: Diagnosis and Management of Concussion

## What happens if a Player is injured and has suspected concussion?

Diagram 1 below indicates what should happen if a Player has suspected concussion. It addresses the situation both when a Medical Practitioner and/or Healthcare Professional is present and not present. If a Player is suspected of having concussion that Player must be removed from play and must not resume playing in the match.

## Medical Practitioner and/or Healthcare Professional present

Where an injury event with the potential to cause a head injury or concussion occurs and there is a Medical Practitioner or Healthcare Professional present the Player will be examined and if any of the signs or symptoms in Table 1 are identified and/or the Player fails to answer correctly the five memory questions in Pocket Scat 2 (Appendix 2) the Player MUST be removed from the field of play for a comprehensive medical evaluation. An assessment of the Player's balance is likely to form part of this off-field evaluation. The Player MUST NOT resume play once removed from the field for suspected concussion.

### Memory questions:

- At what venue are we today?
- Which half is it now?
- Who scored last in this game?
- Which team did you play last week/game?
- Did your team win the last game?

The Player must be removed in a safe manner in accordance with emergency management procedures. If a cervical spine injury is suspected the Player should only be removed by emergency Healthcare Professionals with appropriate spinal care training.

If a Medical Practitioner is present they can use **SCAT 2 (Appendix 1)** or other diagnostic tools to assist in the comprehensive medical evaluation of Players with concussion or suspected concussion. **Note that SCAT2 must only be used for Players aged from 10 years and older.**

Medical practitioners can familiarise themselves with SCAT 2 using the IRB online training programme, available through **www.irbplayerwelfare.com** planned for release in Autumn 2011.

A Player suspected of having concussion shall move to Stage 2, the GRTP protocol, irrespective of the subsequent diagnosis.

## Medical Practitioner and/or Healthcare Professional not present

If there is no Medical Practitioner or Healthcare Professional present the Player who is injured may be disorientated and unable to make a judgement about their own condition. Fellow Players, coaches, Match Officials, team managers, administrators or parents who observe an injured Player displaying any of the signs in Table 1 after an injury event with the potential to cause a head injury or concussion MUST do their best to ensure that the Player is removed from the field of play in a safe manner.

The Player must **not** be left on his or her own and must **not** be allowed to drive a vehicle. If a medical practitioner is not available on-site the Player must be referred to a medical practitioner for diagnosis and comprehensive assessment as soon as possible.

**Pocket SCAT 2 (Appendix 2)** can be used to assist in the identification of suspected concussion where a medical practitioner is not present at the time of the incident. Most importantly if a Player:

a. Shows any of the listed symptoms in Table 1; or
b. Fails to answer any of the memory questions correctly in Pocket SCAT 2; or
c. Makes more than five errors in the balance test in Pocket SCAT 2 ; or
d. There are any concerns that the Player is suspected of having concussion;

then concussion must be suspected and the Player must be removed from play and referred to a Medical Practitioner or Emergency Department for diagnosis and comprehensive assessment as soon as possible.
A Player suspected of having concussion shall move to Stage 2, the GRTP protocol, irrespective of the diagnosis.

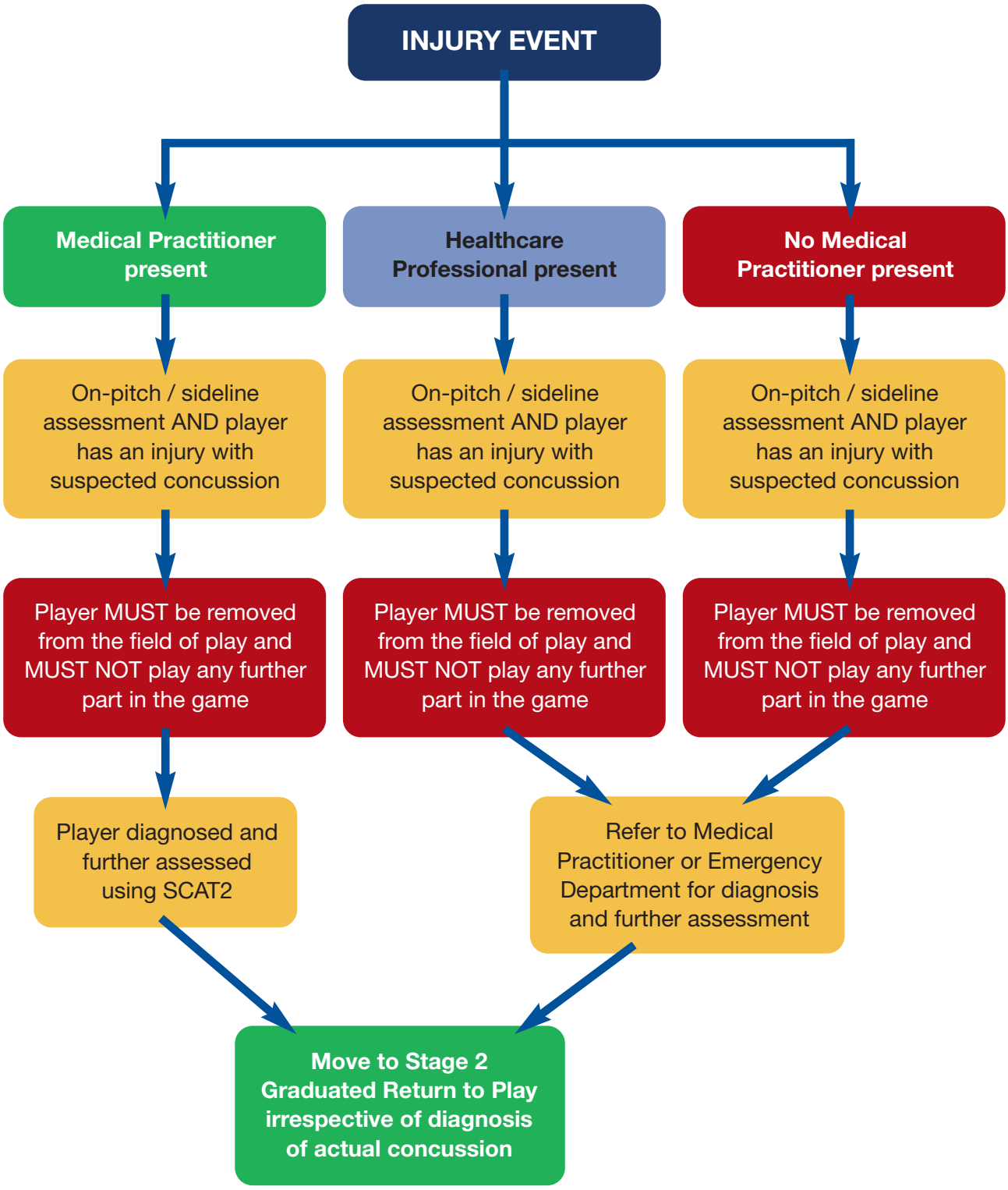
**Pocket SCAT 2** is available from **www.irbplayerwelfare.com**. It is recommended that coaches, team managers, administrators, teachers, parents, Players, Match Officials and Healthcare Professionals associated with Rugby teams educate themselves in the use of Pocket SCAT 2 using the IRB online training programme available through **www.irbplayerwelfare.com** planned for release in Autumn 2011.

## Onset of Symptoms

It should be noted that the symptoms of concussion can first present at any time (but typically in the first 24 – 48 hours) after the incident which caused the suspected concussion.

## Diagram 1

### Stage 1: Diagnosis and initial management



## Modifying Factors in Diagnosis and Management of Concussion

Modifying factors are those that may influence the investigation and management of concussion including the GRTP. In some cases they may predict the potential for prolonged or persistent symptoms (**Table 2**).

### Table 2: Concussion Modifiers

| Factors | Modifier |
|---|---|
| **Symptoms** | Number<br>Duration (>10 days)<br>Severity |
| **Signs** | Prolonged loss of consciousness (>1 min)<br>Amnesia |
| **Sequelae** | Concussive convulsions |
| **Temporal** | Frequency – repeated concussions over time<br>Timing – injuries close together in time<br>“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 (<10 years) and adolescent (10 to 18 years) |
| **Co- and premorbidities** | Migraine, depression or other mental health disorders, attention deficit hyperactivity disorder (ADHD), learning disabilities, sleep disorders |
| **Medication** | Psychoactive drugs, anticoagulants |
| **Behaviour** | Dangerous style of play |
| **Sport** | High risk activity, contact and collision sport, high sporting level |

### Children and adolescents

Whilst the guidelines apply to all age groups particular care needs to be taken with children and adolescents due to the potential dangers associated with concussion in the developing brain. Children under ten years of age may display different concussion symptoms and should be assessed by a Medical Practitioner using diagnostic tools. As for adults, children (under 10 years) and adolescents (10 – 18 years) with suspected concussion MUST be referred to a Medical Practitioner immediately. Additionally, they may need specialist medical assessment. The Medical Practitioner responsible for the child's or adolescent's treatment will advise on the return to play process, however, a more conservative GRTP approach is recommended. It is appropriate to extend the amount of time of asymptomatic rest and /or the length of the graded exertion in children and adolescents.

**Children and adolescents must not return to play without clearance from a Medical Practitioner.**

## Stage 2: Graduated Return to Play (GRTP)

### Following a concussion or suspected concussion how does the Player return to play?

Following a concussion or suspected concussion the management of a GRTP should be undertaken on a case by case basis and with the full cooperation of the Player. This will be dependent on the time in which symptoms are resolved. It is important that concussion is managed so that there is physical and cognitive rest until there are no remaining symptoms. Activities that require concentration and attention should be avoided until symptoms have been absent for a minimum of 24 consecutive hours without medication that may mask the symptoms e.g. headache tablets, anti-depressant medication, sleeping medication, caffeine. The modifying factors in Table 2 should also be taken into consideration. The GRTP process which is managed by a Medical Practitioner is shown in Diagram 2.

### When GRTP is managed by a Medical Practitioner

If a Medical Practitioner (with the assistance of a Healthcare Professional, as applicable) is managing the recovery of the Player it is possible for the Player to return to play after a minimum of six days having successfully followed and completed each stage of the GRTP protocol. The Medical Practitioner may observe the Player at each stage of the GRTP protocol but may also delegate the observation to a Healthcare Professional while remaining responsible for the management of the protocol. The GRTP applies to all situations including tournaments. An indicative minimum GRTP protocol is provided in Table 3. Provided that the Player with concussion or suspected concussion is, and remains, symptom free the Player may commence the GRTP.

Before a Player can restart exercise they must be symptom free for a period of 24 hours (Level 1) and then they may move to the next stage (Level 2). Under the GRTP protocol, the Player can proceed to the next stage if no symptoms of concussion (SCAT 2 provides the symptom checklist) are shown at the current stage (that is, both the periods of rest and exercise during that 24-hour period). This includes level 1 where the Player must experience a minimum of 24 consecutive symptom-free hours of rest prior to moving on to Level 2.

Where the Player completes each stage successfully without any symptoms the Player would take approximately one week to proceed through the full rehabilitation protocol. If any symptoms occur while progressing through the GRTP protocol, the Player must return to the previous stage and attempt to progress again after a minimum 24-hour period of rest has passed without the appearance of any symptoms.

After Level 4 the Player resumes full contact practice and the Medical Practitioner and the Player must first confirm that the Player can take part. Full contact practice equates to return to play for the purposes of concussion. However return to play itself shall not occur until Level 6 (**Table 3**).

## Table 3: GRTP Protocol

| Rehabilitation stage | Functional exercise at each stage of rehabilitation | Objective of each stage |
|---|---|---|
| 1. No activity, minimum 24 hours following the injury where managed by a medical practitioner, otherwise minimum 14 days following the injury | Complete physical and cognitive rest without symptoms | Recovery |
| 2. Light aerobic exercise during 24-hour period | Walking, swimming or stationary cycling keeping intensity, <70% maximum predicted heart rate. No resistance training. Symptom free during full 24-hour period. | Increase heart rate |
| 3. Sport-specific exercise during 24-hour period | Running drills. No head impact activities. Symptom free during full 24-hour period. | Add movement |
| 4. Non-contact training drills during 24-hour period | Progression to more complex training drills, e.g. passing drills. May start progressive resistance training. Symptom free during full 24-hour period. | Exercise, coordination, and cognitive load |
| 5. Full Contact Practice | Following medical clearance participate in normal training activities | Restore confidence and assess functional skills by coaching staff |
| 6. After 24 hours return to play | Player rehabilitated | Recovered |

## Diagram 2

**Stage 2: Graduated Return to Play**

**For those where the GRTP protocol is managed by a Medical Practitioner**

## Where GRTP is NOT managed by a Medical Practitioner

There may be extreme situations where a Player does not have access to a Medical Practitioner to diagnose concussion or to manage the GRTP. In these situations if a Player has shown signs of concussion that Player must be treated as having suspected concussion and must not play until at least the 21st day after the incident and should follow the GRTP process outlined in Diagram 3. Other Players, coaches and administrators associated with the Player should insist on the guidelines being followed.

If a Player has been diagnosed with concussion by a Medical Practitioner but does not have access to a Medical Practitioner to manage the GRTP that Player must not play until at least the 21st day after the incident and should follow the GRTP process outlined in Diagram 3.

In the above situations the GRTP process may commence after a 14 day stand-down period from playing sport and/or training for sport and only if there are no symptoms of concussion.

Ideally the process should be managed and observed by someone familiar with the Player who could identify any abnormal signs displayed by the Player. Pocket SCAT 2 will assist the person managing the process.

Before a Player can restart exercise they must be symptom free for a period of 14 days (Level 1) and then they may move to the next stage (Level 2). Under the GRTP protocol, the Player can proceed to the next stage only if no symptoms of concussion (SCAT 2 provides the symptom checklist) are shown at the current stage (that is, both the periods of rest and exercise during that 24-hour period).

Where the Player completes each stage successfully without any symptoms the Player would take approximately one week to proceed through the full rehabilitation protocol from Level 1. If any symptoms occur while going through the GRTP protocol, the Player must return to the previous stage at which he/she did not experience any symptoms and attempt to progress again after a minimum 24-hour period of rest has passed without the reappearance of any symptoms.

After Level 4 the Player resumes full contact practice and the Medical Practitioner and the Player must confirm that the Player can take part. Full contact practice equates to return to play for the purposes of concussion. However return to play itself shall not occur until Level 6 (Table 3).

Clearance to return to play by a Medical Practitioner should always be sought. However, there may be occasions (which will be in extreme and rare situations) where a Player cannot access a Medical Practitioner to assess the Player for clearance to resume full contact practice. In these extreme and rare situations the Union having jurisdiction over the Player must put in place processes and mechanisms which will only permit Players to resume full contact practice when it is safe to do so. These processes and mechanisms may vary from Union to Union.

Adolescents and children must have clearance from a Medical Practitioner before they can return to play.

## Diagram 3

**Stage 2: Graduated Return to Play**

**For those where the GRTP protocol is not managed by a Medical Practitioner**

It is recognised that Players will want to return to play as soon as possible following a concussion. Players, coaches, management, parents and teachers must exercise caution to:

a. Ensure that all symptoms have subsided;
b. Ensure that the GRTP protocol is followed; and
c. Ensure that the advice of Medical Practitioners (and where applicable Healthcare Professionals) is strictly adhered to.

In doing so, all concerned can reduce the risk to a Player's career longevity and long term health.

All involved in the process of concussion management (including those mentioned above) must be vigilant for the return of symptoms (including depression and other mental health issues) after a concussive incident even if the GRTP has been successfully completed. If symptoms re-occur the Player must consult a Medical Practitioner and those involved in the process of concussion management and/or aware of the return of symptoms should do all they can to ensure that the Player consults a Medical Practitioner as soon as possible.

## Definitions

"GRTP" means graduated return to play.
"Healthcare Professional" means an appropriately-qualified and practising physiotherapist, nurse, osteopath, chiropractor, paramedic, athletic trainer (North America) who has been trained in the identification of concussion symptoms and the management of a concussed Player.
"Medical Practitioner" means a doctor of medicine.
"Player" means a player of the Game who is a non-contract Player or a contract Player.

IRB Concussion Guidelines – Issued 24 May 2011