

## Recovery and Return to Play (Routine)

Concussion must be taken extremely seriously to safeguard the short and long term health and welfare of players, and especially young players. That said, the majority of concussions resolve spontaneously within a short time period and from the outset there should therefore be a positive outlook and attitude towards recovery.

Current thinking is that majority (80-90%) of concussion symptoms resolve in around 7-10 days, with some estimates that in around 1/3 the symptoms resolve within 1 - 2 days. It is however widely agreed that children and adolescents take longer to recover, and because their brains are still developing a more conservative approach should be taken with them. It is also widely agreed that while symptoms may resolve, the brain takes a bit longer to recover fully and thus we have to allow for this in our guidance.

There is now good evidence that during this recovery period the brain is more vulnerable to further injury, and if a player returns too early before they have fully recovered and have repeated concussions this may result in:

- Prolonged concussion symptoms
- Increased risk of developing Post-Concussion Syndrome ( PCS) with symptoms lasting over 3 months
- Possible increased risk of long term health consequences e.g. mild cognitive impairment or degenerative brain disorders in later life.
- Further concussive events before recovery in adolescents while very rare and poorly understood, can be FATAL, due to severe brain swelling – known as second impact syndrome.

### What should players do to return to play (RTP)?

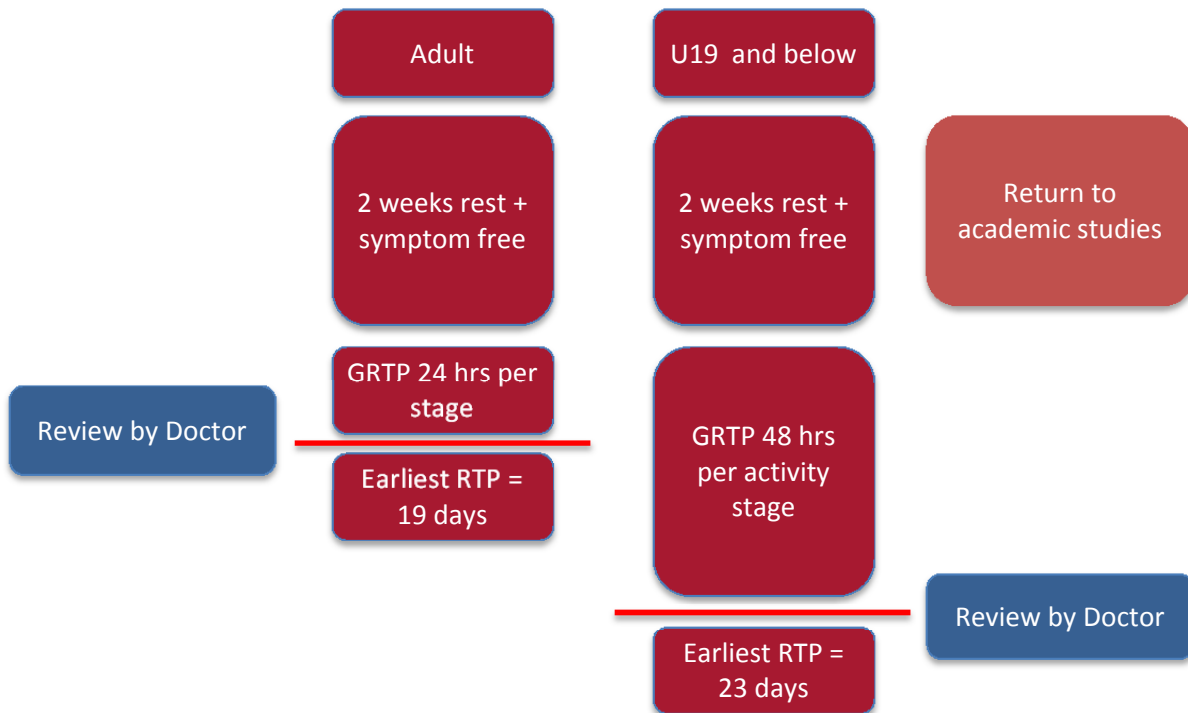
The routine return to play pathway is shown in the diagram below, which has been agreed across sports, and re-produced as National Guidelines for the Education Sector endorsed by the Department of Health and the Department for Education:

[www.sportandrecreation.org.uk/concussion-guidelines](http://www.sportandrecreation.org.uk/concussion-guidelines)

These guidelines can therefore be used across sports and in managing RTP to play in rugby when the concussion occurred in another sport or in everyday activities

In these guidelines the player's age is deemed to be their age as at 1<sup>st</sup> September.

**Recover and Return - RTP guidelines:**



Looking at these in more detail, there are some important things to note and be aware of:

- All those with suspected or diagnosed concussion should follow this pathway.
- If a player in whom those present at the game when the injury occurred clearly identified signs and/or symptoms of concussion in him/her is subsequently seen by a healthcare practitioner and by then is free of signs/symptoms, they should still follow this RTP pathway.
- The timing starts from the day after the concussive injury
- Players or parents/guardians are responsible for informing all sporting clubs and schools they play at of their concussion.
- It is good practice for the coach/manager of the team/club to advise the school and/or other clubs the player attends of the concussion – this can only be done with the players/parents/guardians consent.
- Head impact avoidance during recovery – see below
- Review by a Doctor – see below.

## **Rest and Return to Academic Studies**

One of the most important aspects of recovery is to have an expectation of recovery and a positive, open and honest approach. This should be reinforced with the player and the parents/guardians.

After a concussion the brain needs to rest, so initially the player should have complete rest from all physical and brain activities such as; exercise, reading, television, computer, video games and smart phones. Sleep is good for recovery. There is however a balance needed and too much complete rest is thought to delay recovery, so returning to light activities of daily living as soon as the symptoms have started to reduce is advised. No more than 24hrs complete rest is all that is needed in most cases.

Once symptoms have resolved they can gradually re-introduce normal activities but during this time they should NOT return to sport or activities with a predictable risk of further head injury. If symptoms return then reduce the levels of provoking activity, rest and then re-introduce them more gradually.

School<sup>1</sup> absence - It is reasonable for a child to miss a day or two of school after a concussion if they feel unwell or if on returning to lessons their symptoms return. Extended absence is rarely needed.

Children and young people should return to academic studies before they return to sport:

- Good communication with the school is important and the school may have a support worker who can help and advise.
- Pupils should undertake a graded return to academic studies.
- Consideration should be given to managed return to full study days i.e. part days initially
- Gradual re-introduction of homework is advised to avoid long days of work.
- Consideration should be given to delaying tests and exams until fully recovered. If this is not possible then the school should advise the Examinations Board.
- In a small number of cases, symptoms may be prolonged and this may impact on the child's studies. In such cases, early referral back to their GP and educational support services is advised

## **Head Impact Avoidance During Recovery**

Where a young player's RTP is not closely supervised by a Doctor experienced in managing concussion, to ensure complete recovery before returning to activities with a risk of head impacts, it is recommended that once symptom free, children and adolescents in particular avoid such activities for a minimum of 14 days from the resolution of symptoms.

It is becoming clear that the brain is still recovering and remains vulnerable for a period after symptoms have resolved.

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<sup>1</sup> The term school is used but the principles also apply to College and University students

# DON'T BE A HEADCASE STOP! CHECK FOR CONCUSSION

HEADACHE EMOTIONAL APPEARANCE DROWSINESS CONFUSION AGITATED SEIZURE EARS AND EYES

This means that any player with symptoms that last over 7 days will not be able to return at the earliest RTP time shown above (i.e. 23 days for U19s and below) – remember Stage 5 of the GRTP involves full contact practice.

This is because, if their symptoms last 8 days they should not enter Stage 5 (Contact practice) until  $8 + 14 = 22$  days and thus earliest RTP is  $8 + 14 + 2 = 24$  days. Similarly if symptoms last 12 days the earliest RTP is  $12 + 14 + 2 = 28$  days.

**It must be emphasised that these are minimum return to play times and in players who do not recover fully within these timeframes, these will need to be longer.**

## Graduated Return to Play (GRTP)

Following the recommended rest period detailed above the player should return to sport by following a graduated return to play (GRTP) protocol as shown below.

This should only be started when the person:

- Has had 14 days rest
- Is symptom free
- Is off all medication that modifies symptoms e.g. painkillers
- Has returned to normal studies or work
- Should not be involved in activities with a risk of further head impact until a minimum of 14 days symptom free.

Children and young people whose GRTP is not closely supervised by a Doctor experienced in managing concussion should have an extended GRTP compared to adults and a minimum of 48 hours for each activity stage is recommended.

The GRTP should be undertaken on a case by case basis and with the full cooperation of the player and their parents/guardians.

Where a club/school has their own medical resources the GRTP process should be carried out by the club/school coach, and overseen by the club/school health care professional/doctor.

## Review by a Doctor

Following a concussion or suspected concussion, children and young people should be reviewed/assessed by a doctor before returning to sport and other activities with a predictable risk of head injury e.g. football, rugby, gymnastics, horse riding, hockey, combat sports, skate boarding etc.

Some GPs are happy to clear a player to return to play, but formally clearing players to return to sport is not their role. It is however considered by most experts in concussion that good routine clinical management should include a review by the GP at an appropriate time to confirm recovery and satisfy themselves that there are no other underlying conditions. An appropriate time is considered to be around the average time for expected full recovery and before returning to activities with a recognisable risk of head impacts. This fits nicely with the GRTP at around 18 days for adults and 21 days for children.

The GP does not need to provide a letter as verbal confirmation by the player or parent/guardian for U18s is acceptable. Clubs and schools are advised to make a record of this verbal confirmation. GPs may charge a fee for providing a letter.

The following should also be referred back to their doctor for review:

- Children and young people who struggle to return to their studies
- Those who persistently fail to progress through the GRTP because symptoms return
- Children and young people who sustain two or more concussions in a 12-month period should be referred to their doctor for a specialist opinion in case they have an underlying pre-disposition or risk factors.

A summary of the adult GRTP is shown in the diagram below:

Stage	Rehabilitation Stage	Exercise Allowed	Objective
1	Rest	Complete physical and cognitive rest without symptoms	Recovery
2	Light aerobic exercise	Walking, swimming or stationary cycling keeping intensity, <70% maximum predicted heart rate. No resistance training.	Increase heart rate and assess recovery
3	Sport-specific exercise	Running drills. No head impact activities.	Add movement and assess recovery
4	Non-contact training drills	Progression to more complex training drills, e.g. passing drills. May start progressive resistance training.	Add exercise + coordination, and cognitive load. Assess recovery
5	Full Contact Practice	Normal training activities	Restore confidence and assess functional skills by coaching staff. Assess recovery
6	Return to Play	Player rehabilitated	Safe return to play once fully recovered.

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An example of an U19 GRTP is shown in the diagram below:

Day	Rehabilitation Stage	Exercise Allowed	Notes
1 – 14	REST	Activities of daily living	Return to academic studies
Sun	Stage 2 Light aerobic exercise	PE lessons or own run/swim/cycle – low intensity	
Mon			
Tue	Stage 3 + 4 Sport specific – non contact	Normal PE Lessons + rugby training sessions Non-contact Progressive increase in complexity, intensity and decision making	Monitor symptoms using Pitch Side Concussion Recognition Tool (SCAT 3 for HCP)
Wed			
Thu			
Fri			
Sat		Own run/swim/cycle – high intensity	Review techniques and high risk behaviours
Sun			
Mon	Stage 5	Full Contact Practice	Review by GP
Tue			
Wed	Stage 6	Return to Play	

The Pocket Concussion Recognition Tool symptom and signs check list can be used by non-healthcare practitioners to assess players at each stage of the GRTP. This is shown below and is available to download from the resources section of [www.EnglandRugby.com/concussion](http://www.EnglandRugby.com/concussion)

**Pocket CONCUSSION RECOGNITION TOOL™**  
To help identify concussion in children, youth and adults



**RECOGNIZE & REMOVE**  
Concussion should be suspected if **one or more** of the following visible clues, signs, symptoms or errors in memory questions are present.

**1. Visible clues of suspected concussion**  
Any one or more of the following visual clues can indicate a possible concussion:

- Loss of consciousness or responsiveness
- Lying motionless on ground/Slow to get up
- Unsteady on feet / Balance problems or falling over/Incoordination
- Grabbing/Clutching of head
- Dazed, blank or vacant look
- Confused/Not aware of plays or events

**2. Signs and symptoms of suspected concussion**  
Presence of any one or more of the following signs & symptoms may suggest a concussion:

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

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**3. Memory function**  
Failure to answer any of these questions correctly may suggest a concussion.

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

**Any athlete with a suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, and should not be returned to activity until they are assessed medically. Athletes with a suspected concussion should not be left alone and should not drive a motor vehicle.**

It is recommended that, in all cases of suspected concussion, the player is referred to a medical professional for diagnosis and guidance as well as return to play decisions, even if the symptoms resolve.

**RED FLAGS**  
If ANY of the following are reported then the player should be safely and immediately removed from the field. If no qualified medical professional is available, consider transporting by ambulance for urgent medical assessment:

- Athlete complains of neck pain
- Increasing confusion or irritability
- Repeated vomiting
- Seizure or convulsion
- Weakness or tingling/burning in arms or legs
- Deteriorating conscious state
- Severe or increasing headache
- Unusual behaviour change
- Double vision

**Remember:**

- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Do not attempt to move the player (other than required for airway support) unless trained to do so
- Do not remove helmet (if present) unless trained to do so.

from McCrory et. al, Consensus Statement on Concussion in Sport. Br J Sports Med 47 (5), 2013  
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Healthcare practitioners should use the SCAT 3 or Paediatric SACT 3 to monitor recovery. These are also available to download in the HCP Resources Section from [www.EnglandRugby.com/concussion](http://www.EnglandRugby.com/concussion)

### **Important notes on GRTP:**

- The player can progress through each stage as long as no symptoms or signs of concussion return.
- Where the player completes each stage successfully without any symptoms the player would normally proceed through each stage on successive days. In U19s, progression should take 2 days for each stage.
- If any symptoms occur while progressing through the GRTP protocol, the player should rest a minimum 24-hour (adult) or 48 hour (U19) until symptom free and then may return to the previous stage.
- If it is not feasible for the coach to conduct Levels 2 - 4, these may be done by the player in their own time or in children supervised by parents with appropriate guidance. Alternatively the protocol may simply be extended with each level being conducted by the coach at training sessions or in the school setting by other PE staff during PE lessons, when they are able
- On completion of Level 4 the player should be reviewed by their Doctor and as long as they have recovered from the concussion and have no other conditions, may resume full contact practice (Level 5).
- In U19s and below players should also have had 14 days since symptom resolution before starting Stage 5 (see avoiding head impacts above).
- Schools and clubs are advised to keep a record of the player's or parent's confirmation that clearance has been obtained and a doctor's letter is not necessarily required.
- On completion of Level 5 without the presence of symptoms, the player may return to playing in full contact rugby games (Level 6).

**It is the player's or parent's responsibility to obtain medical review before returning to play.**

### **Correcting Player Techniques and Behaviours:**

If a player's concussion resulted from poor tackle technique, their coach should also ensure that this is corrected before return to play.

If there are concerns about the player's behaviour and approach to the game when playing or training, that appears to put them at increased risk of concussion, then this should be addressed before return to play.

## Summary

Most players make an uneventful recovery from their concussion but it is important that we all work to ensure that they are managed properly for their short and long term health.

It is recognised that players will often want to return to play as soon as possible following a concussion. Players, coaches, management, parents and teachers must exercise vigilance and caution to ensure a safe Return To Play:

- a. Ensure that all symptoms have subsided and students have returned to academic studies successfully before commencing GRTP.
- b. Ensure that the GRTP protocol is followed,
- c. Ensure that the advice of Medical Practitioners and other Healthcare Professionals is sought

After returning to play all involved with the player, especially coaches and parents must remain vigilant for the return of symptoms even if the GRTP has been successfully completed.

**If symptoms reoccur the player should consult a Healthcare Practitioner as soon as possible as they may need referral to a specialist in concussion management.**

## Additional resources

- Pocket Concussion Recognition Tool [www.englandrugby.com/concussion](http://www.englandrugby.com/concussion)
- SCAT 3 and Paediatric SCAT 3 <http://www.englandrugby.com/concussion>
- Interactive on-line Modules for Coaches, Players, Match Officials, and Teachers/Parents. <http://www.englandrugby.com/concussion>
- Health Care Professionals concussion educational module. <http://playerwelfare.worldrugby.org/concussion>

*These RFU Concussion resources have been developed based on the Zurich Guidelines published in the Consensus Statement on Concussion in Sport, and adapted for rugby in England with the assistance of experts in the field.*

**The information contained in this resource is intended for educational purposes only and is not meant to be a substitute for appropriate medical advice or care. If you believe that you or someone under your care has sustained a concussion we strongly recommend that you contact a qualified health care professional for appropriate diagnosis and treatment. The authors have made responsible efforts to include accurate and timely information. However they make no representations or warranties regarding the accuracy of the information contained and specifically disclaim any liability in connection with the content on this site.**