# The Army Rugby Union

## THE MANAGEMENT OF CONCUSSION DURING MILITARY RUGBY UNION

### Summary

1. This policy outlines guidance for assessment and management of concussion sustained during military rugby and clarifies clinical care pathways and graduated return to play. The aim of this document is to improve player welfare.

2. This policy is derived from the interpretation of the following:
   a) Return to Play after Concussion. RFU guidelines
   b) The Berlin Consensus Statement on Concussion in Sport 2016
   c) National Institute for Health and Care Excellence, 2014. 'Head injury', NICE clinical guideline 176.

### Background

3. Concussion is a significant and relatively common injury whilst playing rugby, however the exact incidence is uncertain due to availability of medical professionals to diagnose concussion, players admitting or presenting with concussion, different definitions of concussions used and collection of information across different levels of rugby.

4. Concussion is a traumatic brain injury induced by biomechanical forces from a direct blow to the head or elsewhere on the body with an impulsive force transmitted to the head. This causes a short-lived impairment of neurological function which presents as a range of clinical signs and symptoms that may or may not involve loss of consciousness. These neuropathological changes largely reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies. [1]

5. Sport related concussion often presents with rapidly changing clinical signs and symptoms, which may themselves be delayed in onset. It can commonly cause cognitive deficits, balance dysfunction and symptoms in the first 24–72 hours after injury. Resolution typically follows a sequential course and most athletes with concussion, improve rapidly during the first 2 weeks after injury. However a small minority will have persistent symptoms. Neurobiological recovery might extend beyond clinical recovery in some athletes.

6. There is no perfect diagnostic test and concussion remains difficult to assess, diagnose and manage. A standardised multimodal assessment tool (SCAT5) is recommended for side-line assessment but should not take the place of clinical judgement.

[1] McCrory P, Meeuwisse W, Dvořák J, et al. Consensus statement on concussion in sport-the 5th international conference on concussion in sport held in Berlin, October 2016. Br J Sports Med. 2017 Jun;51(11):838-847.

**On the field initial assessment**

7. The Concussion Recognition Tool 5 (CRT5) is an abbreviated version of the Sport Concussion Assessment Tool (SCAT5) designed for pitch side use. The tool includes a list of visible clues, signs and symptoms of suspected concussion and a brief assessment of memory (Maddock's questions). It is recommended that all medical or first aid staff familiarise themselves with this tool and carry a copy with them.

8. The principle of concussion care in this scenario is to "recognise and remove" any player suspected of having concussion.

9. If any of the visible signs or symptoms, listed on the CRT5, are identified and/or the player fails to answer correctly the five memory questions then the player MUST be removed from the field of play for a comprehensive medical evaluation and not return to play. Clinical suspicion should always overrule a 'normal' result from any concussion support tool.

10. All players with head injury should be managed using standard emergency principles. In particular those who are not alert and orientated, should have full cervical spine immobilisation and should be extricated with spinal immobilization from the pitch, if trained and as soon as it is safe to do so.

11. **Currently any UKAF rugby is not sanctioned to conduct head injury substitutions; therefore if concussion is suspected the player must be removed from play.**

**Transfer to hospital**

12. If a player reports or demonstrates any of the following, then they should be evacuated to hospital for urgent medical assessment:

a) Persistent unconsciousness
b) Increasing drowsiness / deteriorating consciousness
c) Unusual behaviour change, increasing confusion, restlessness or agitation
d) Seizure or fit
e) Weakness or numbness in any limb
f) Decreases in coordination or balance difficulty
g) Repeated vomiting
h) Difficulty speaking, such as slurred speech
i) Prolonged vision problems, such as double vision or blurred vision
j) Clear fluid leaking from the nose or ears
k) Bleeding from one or both ears
l) Sudden deafness in one or both ears
m) Severe or increasing headache
n) Severe neck pain

**Post-match same day concussion assessment**

13. Once any first aid issues are addressed, all players who have been removed from the field of play following a head injury or who are suspected to have suffered a head injury during the game should have a post-match, same day concussion assessment using the SCAT5 before leaving the ground.

14. When conducting the SCAT5 cognitive assessment (SAC), do not use the word stem including the words: "elbow, apple carpet, saddle, bubble", because these words are also used in formal neuropsychological assessment at DMRC or other centres. Therefore over familiarity with these words will invalidate results formal tests and could make management of players with persistent symptoms more difficult.

15. Results from this post-match assessment should be compared with the baseline SCAT5 results. Each clinical area: symptom check, cognitive assessment (SAC) balance, physical signs, and behavioural changes - should be compared with the respective baseline. Any variation in one or more mode(s) is strongly in favour of concussion.

16. **A player with concussion should not consume alcohol in the first 24 hours** and thereafter should avoid alcohol until their doctor provides clearance or, if no medical advice is available, at least until symptom-free.

17. **A player with concussion should not drive a motor vehicle until provided clearance** or, if no medical advice is available, at least until symptom-free.

18. A medical practitioner should make a DMICP record of any player with concussion and / or contact the player's medical centre.

19. A player should be given a notification of concussion form (Annex E) to give to their chain of command to inform them that a player has experienced concussion to be able to manage them effectively.

20. A player should sign the consent to disclose medical information form (Annex F), if they have not done so previously, and the medical team should inform the player that they will disclose to team management staff. The management team may need to liaise with the player's civilian team to notify them of the diagnosis of concussion, to ensure consistent medical care and player welfare.

**Referral for further assessment**

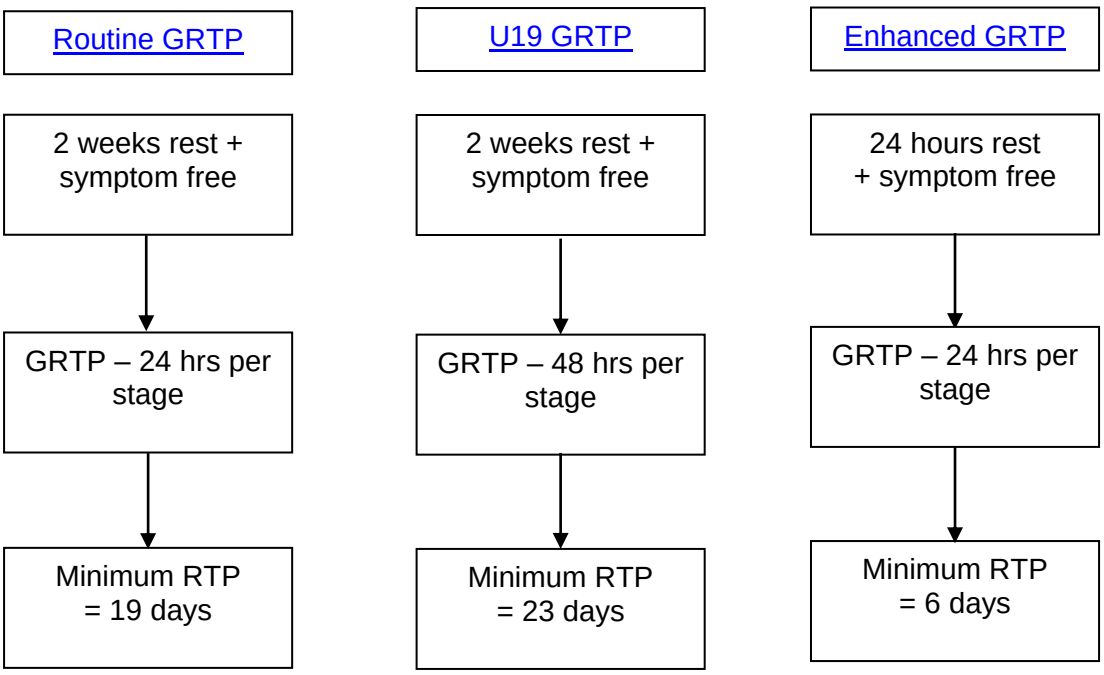
21. Any player with a second concussion within 12 months, a history of multiple concussions, players with unusual presentations or prolonged recovery (symptomatic for more than 2 weeks) must be assessed and managed by health care providers (multi-disciplinary) with experience in sports-related concussions and no further participation in rugby should take place until the player is cleared by a doctor with experience in concussion management. Within the military these players should be referred the mild traumatic brain injury (mTBI) team at Defence Medical Rehabilitation Centre (DMRC). Email: DMRC-mTBI@mod.gov.uk. Website www.mTBI.mod.uk

**Sporting restrictions and return to play**

22. The initial treatment of concussion consists of relative physical and cognitive rest (stage 1). In the early stages of a concussion recovery, the player should avoid physical or cognitive activities that result in an increase in symptoms. Therefore the player may need to see their unit medical officer to consider a 'light duties chit' for a short period.

23. After concussion there is a period of time during which sporting restrictions apply. Following which a player must undergo a graduated return to play protocol (GRTP). Three GRTP protocols exist: The standard, enhanced and 'under 19' (U19) programme. The enhanced GRTP is only available to elite service level teams when all RFU requirements are met and agreed with the single service rugby union medical lead.

**Each programme is outline below:**



## Routine and under 19* GRTP programme

| GRTP Stage | Guidance activity level | Specific ARU activity programme | Rationale | Medical Review |
|---|---|---|---|---|
| GRTP Stage 1 | No activity - Physical and cognitive rest | Relative physical and cognitive rest for a minimum period of 14 days<br>Return to light activities of daily living that do not provoke symptoms.<br>Consider time off or adaptation of work or study. | | |
| GRTP Stage 2 | Light aerobic activity | No resistance training.<br>Light aerobic exercise e.g.<br>20 minute static bike session at maximum 70% of predicted maximum heart rate (HRMax) (HRMax = 220-age)<br>5mins @ 50%; 5mins @ 55%; 10mins @ 60-70%<br>Alternatives include jogging, swimming using the same heart rate guidance.<br>No resistance training | To increase heart rate and assess recovery | Medical review if symptoms recur |
| GRTP Stage 3 | Sports specific drills | Running drills. No head impact activities<br>Sport specific exercise e.g.<br>20 minute running session at maximum 70% of maximum HR (this is not a conditioning session):<br>2 laps of pitch (light jog)<br>Dynamic stretch block<br>Running drills: Accelerate – Maintain – Decelerate (x10 rest 1 minute in between)<br>Forwards: 20m – 20m – 20m<br>Backs: 30m – 40m – 30m | To add movements and assess recovery | Medical review if symptoms recur |
| GRTP Stage 4 | Non-contact training drills | Non-contact training (including progressive resistance training, e.g.<br>All - Ball handling and light running drills<br>Forwards - Touch rugby, non-contact moves, Lineout session (no mauls, no scrums)<br>Backs – Touch rugby, non-contact moves, or passing / kicking drills | To add movements and assess recovery | Medical review to rule out on-going symptoms and signs of concussion before progression<br>to start contact training (stage 5) |
| GRTP Stage 5 | Full contact training | Full contact training<br>No restrictions in training | To assess functional skills in exercise and recovery | Medical review to rule out on-going symptoms of concussion before progression<br>to return to play (stage 6) |
| GRTP Stage 6 | Return to play | No restrictions | | |

*NB minimum 48-hour period for each active stage (i.e. stages 2-5) for U19 programme

24. Before commencing the active elements (stages 2-5) of the routine GRTP the player must have completed the period of relative rest, must be symptom free, must be off all medication that modifies symptoms e.g. painkillers.

25. The player can then progress through the GRTP stages 2-5 as long as no symptoms or signs of concussion return. If a player completes each stage successfully without any symptoms over the next 24 hours the player is able to proceed to the next stage on successive days. 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 without the presence of symptoms at that level. (I.e. if at Level 3 when they become symptomatic then they must go back to Level 2 the next day.)This means that their subsequent return to play will be delayed.

26. Stages 2- 4 incorporate progressive non-contact exercise of increasing complexity and level of exertion. If it is not feasible for a coach to formally conduct Levels 2 - 4, these may be done by the player in their own time following the GRTP guidance below or with the Unit PTI or ERI.

27. Before the player may resume full contact practice (stage 5) a player must be reviewed by a medical officer, after stage 4, to rule out on-going symptoms and signs of concussion. A further

restriction is included for U19 players prior to return to contact training: An U19 player should only recommence contact training until a minimum 14 day period of being symptom free.

28. Stage 5 – include full contact practice within normal training conditions. After completion of contact training a medical review with a symptom checklist review should be completed and if confirmed absence of reported symptoms, should be cleared to return to play (stage 6).

29. Medical reviews during the GRTP should include a comprehensive history with symptom checker and detailed neurological examination, (including cognition, oculomotor function, gross sensorimotor, coordination, gait, vestibular function and balance). Several of these components are included in the SCAT5 (Annex C). The Medical Officer should complete these assessments and compare post injury results to baseline and / or post injury scores where available.

## Enhanced care GRTP programme

| GRTP Stage | Guidance activity level | Specific ARU activity programme | Rationale | Medical Review |
|---|---|---|---|---|
| GRTP Stage 1 | No activity - Physical and cognitive rest | Must be symptom free for a minimum of 24 hours<br>e.g. if concussion occurs on Saturday, a player must have no symptoms all of Sunday before starting stage 2 on Monday | | Medical review at 36-48 hours to rule out on-going symptoms and signs of concussion (SCAT5) with results returned to baseline before progression to start exercise (stage 2) |
| GRTP Stage 2 | Light aerobic activity | Light aerobic exercise e.g.<br>20 minute static bike session at maximum 70% of predicted maximum heart rate (HRMax) (HRMax = 220-age)<br>5mins @ 50%; 5mins @ 55%; 10mins @ 60-70%<br>Alternatives include jogging, swimming using the same heart rate guidance.<br>No resistance training | To increase heart rate and assess recovery | Symptom checklist review<br>If negative can progress to stage 3 |
| GRTP Stage 3 | Sports specific drills | Sport specific exercise e.g.<br>20 minute running session at maximum 70% of maximum HR (this is not a conditioning session):<br>2 laps of pitch (light jog)<br>Dynamic stretch block<br>Running drills: Accelerate – Maintain – Decelerate (x10 rest 1 minute in between)<br>Forwards: 20m – 20m – 20m<br>Backs: 30m – 40m – 30m | To add movements and assess recovery | Symptom checklist review<br>If negative can progress to stage 4 |
| GRTP Stage 4 | Non-contact training drills | Non-contact training (including progressive resistance training, e.g.<br>All - Ball handling and light running drills<br>Forwards - Touch rugby, non-contact moves, Lineout session (no mauls, no scrums)<br>Backs – Touch rugby, non-contact moves, or passing / kicking drills | To add coordination and cognitive load to exercise and assess recovery | Medical review to rule out on-going symptoms and signs of concussion (SCAT5) before progression<br>to start contact training (stage 5) |
| GRTP Stage 5 | Full contact training | Full contact training<br>No restrictions in training | To assess functional skills in exercise and recovery | Symptom checklist review<br>If negative can return to play ( stage 6) |
| GRTP Stage 6 | Return to play | No restrictions | | |

30. The criteria stipulated by the RFU to conduct an enhanced care concussion GRTP include:
    a) There must be a doctor with training and experience in the management of concussion available to closely supervise the player's care and GRTP, and clear the player prior to RTP.
    b) AND there is a structured concussion management programme in place including:
        i. Baseline psychometric or cognitive testing of players
        ii. Serial multimodal concussion assessment post injury
        iii. Formalised GRTP programme
        iv. Access to neuropsychology / neurology / neurosurgery / neuro-rehabilitation specialists
        v. Concussion education programme for coaches and players.

31. There may be periods during the season and competitions when the RFU criteria may be fulfilled and the enhanced protocol is possible within elite UKAF teams. The single service rugby union SMO must sanction the use of the enhanced programme.

32. Baseline psychometric or cognitive testing of players Baseline testing and multimodal concussion assessment should include the SCAT5 tool.

33. The exercise elements of the GRTP programme have been formalised and are outlined above.

34. The mild traumatic brain injury service at DMRC, will accept referrals from the team doctor for players with persistent symptoms, diagnostic uncertainty or multiple concussive events.

35. Players and coaches should have a yearly education session on concussion delivered by the team doctor, which is available through the RFU, and are instructed to undertake online educational modules as described in Annex A.

36. Medical reviews during the GRTP include symptom checker and cognitive testing, balance examination and coordination examination. All of which are included in the SCAT5 tool. The practitioner should complete these assessments and compare post injury results to baseline scores.

37. Before a player can commence the exercise elements of the enhanced care GRTP, they must be symptom free for a minimum of 24 hours (stage 1). E.g. if concussion occurs on Saturday, a player must have no symptoms all of Sunday before starting stage 2 on Monday. A player must be reviewed after this stage, to conduct a SCAT5, and results should have returned to comparable baseline scores, before clearance to start exercise.

38. Stages 2- 4 incorporate progressive non-contact exercise of increasing complexity and stage of exertion. Coaching staff should supervise a player conducting the UKAFRU GRTP programme as described above. On completion of stage 4 the player may resume full contact practice (stage 5) with medical officer clearance. Therefore a player must be reviewed after stage 4, to conduct a SCAT5, to give clearance to progress to contact training.

39. Stage 5 – include full contact practice within normal training conditions. After completion of contact training a symptoms checklist review should be completed and if confirmed absence of reported symptoms, should be cleared to return to play (stage 6).

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**ANNEX A - TRAINING AND EDUCATION**
**ANNEX B - CONCUSSION RECOGNITION TOOL 5**
**ANNEX C - SPORT CONCUSSION ASSESSMENT TOOL 5**
**ANNEX D - CONCUSSION / HEAD INJURY ADVICE SHEET**
**ANNEX E - CONCUSSION / HEAD INJURY NOTIFICATION FORM**
**ANNEX F - CONSENT TO DISCLOSE MEDICAL INFORMATION**

## ANNEX A - TRAINING AND EDUCATION

1. For further information about concussion in rugby visit the RFU website: http://www.englandrugby.com/my-rugby/players/player-health/concussion-headcase/

2. To improve player welfare all players and coaches are instructed to undertake these online education modules hosted by the RFU:
   a) http://www.englandrugbyfiles.com/medical/concussion-awareness/players/
   b) http://www.englandrugbyfiles.com/medical/concussion-awareness/coaches/

3. Alternatively this online module is hosted by World Rugby:
   a) Concussion Management for the General Public
      http://playerwelfare.worldrugby.org/?documentid=module&module=21

4. Doctors and Physiotherapists are instructed to complete two World Rugby concussion education online modules:
   a) Concussion Management for Doctors and Healthcare Professionals
   b) Concussion Management for Elite Level Match Day Medical
      http://playerwelfare.worldrugby.org/concussion:

**ANNEX B - CONCUSSION RECOGNITION TOOL 5**
http://bjsm.bmj.com/content/bjsports/51/11/872.full.pdf

## ANNEX C - SPORT CONCUSSION ASSESSMENT TOOL 5

To download a clean version of the SCAT tools please visit the journal online:
http://bjsm.bmj.com/content/bjsports/51/11/851.full.pdf

**ANNEX D - CONCUSSION / HEAD INJURY ADVICE SHEET**

# Army Rugby Union

1. This information sheet is intended for players who have been diagnosed with concussion during military rugby.

2. In the first 24 hours, if possible, you should have a responsible adult with you, who is not drinking alcohol, and show them this information sheet so they are aware of concussion management.

3. It is very unlikely, but there is a small risk of developing complications after a head injury, so if any of the following symptoms occur in the next 24-48 hours you should go to the Emergency Department as soon as possible.

| | |
|---|---|
| Severe or worsening headache | Dizziness or balance problems |
| Repeated vomiting | Blurred or double vision |
| Increasing confusion or disorientation | Clear fluid coming out of your ear or nose |
| Drowsiness / reduced consciousness | New deafness |
| Seizure / fit | Bleeding from one or both ears |
| Weakness in one or more arms or legs | Problems understanding or speaking |

4. It is common to experience some of the following symptoms over the next few days which should disappear after a short period. Recovery time is variable across individuals and unless they are particularly severe or continue for more than 2-3 weeks, specialist advice is not usually necessary.

| | |
|---|---|
| Mild headache | Problems with your memory |
| Feeling sick (without vomiting) | Tiredness |
| Dizziness | Lack of appetite |
| Irritability or bad temper | Problems sleeping |
| Problems concentrating | |

5. It is recommended that you see your Medical Officer to review your symptoms and consider any restrictions of work duties, as necessary, to a level that does not worsen symptoms.

6. The following are recommendations that may help recovery and relieve some of your symptoms:

a. Do not drink alcohol
b. Do not take any sleeping pills or strong painkillers unless prescribed by your doctor (paracetamol is acceptable)
c. Do not participate in exercise, training or sport until given medical clearance
d. Do not drive until symptoms have resolved

7. Most people recover over the next 2-3 weeks; however, if you experience on-going symptoms visit your Medical Officer who can consider any referral, if necessary, to the Mild traumatic Brain injury team at DMRC Headley Court. Website www.mtbi.mod.uk

8. Return to sport and military physical activity requires clearance by a healthcare professional. You are not fit to play rugby for a mandated period of time and must undergo a graduated return to play with medical reviews as outlined by the UKAFRU Policy.

**ANNEX E - CONCUSSION NOTIFICATION FORM**

# Army Rugby Union

Player name: _____

Service number: _____

Date of injury: _____

1. The above named player was diagnosed with concussion during military rugby.

2. A medical examination has been carried out and no sign of any serious complications has been found. Further medical notes will be transcribed onto DMICP.

3. Recovery time is variable across individuals with up to 50% of people experience some of the following symptoms during the first few weeks after concussion. Unless they are particularly severe or continue for more than 2-3 weeks, specialist advice is not usually necessary.

4. Symptoms may include:

| | |
|---|---|
| Mild confusion | Slowed thinking skills |
| Difficulty remembering things | Balance problems / dizziness |
| Difficulty concentrating | Nausea |
| Headache | Anxiety |
| Fatigue | Difficulty sleeping |
| Sensitivity to noise or light | Feeling depressed / tearful |

5. The player has been advised to report to his / her Medical Officer for a medical review as he / she may require limitations to physical activity, military and work duties dependant on symptoms.

6. Return to sport and military physical activity requires clearance by a healthcare professional. The player is not fit to play rugby for a mandated period of time and must undergo a graduated return to play with medical reviews as outlined by the UKAFRU Policy.

7. Further support is available from the Mild Traumatic Brain Injury team at DMRC Headley Court. Website www.mtbi.mod.uk Email: DMRC-mTBI@mod.uk

Clinician name: _____

Clinician signature: _____

**ANNEX F - CONSENT TO DISCLOSE MEDICAL INFORMATION**

# Army Rugby Union

Consent to release confidential medical information to a third party

Player name: _____

Service number: _____

1. To ensure safe medical care of military rugby players, it may be necessary at times for medical information to be shared between military and civilian medical and management personnel. Only essential relevant information would be disclosed directly related to fitness to play rugby or rehabilitation from injury and you will be informed of the medical team's intention to do so before any disclosure is made.

2. I consent to medical team personnel sharing relevant personal medical information about me with the military rugby union management staff and my unit chain of command.

3. I consent to the medical team personnel sharing relevant personal medical information about me with named medical of management personnel from my civilian rugby club (detailed below) when necessary to ensure continuity of care and to ensure safe and effective care.

4. I understand that if I go against medical advice this may have military disciplinary consequences.

5. I understand that this consent is enduring, unless I give written notification otherwise.

Player Signature _____ Date _____

Clinician name: _____

Clinician signature: _____ Date _____