Traumatic Brain Injury Management Policy

(Head Injury & Strangulation)

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Date of next review: December 2026

REVIEW OF POLICY

This policy will be reviewed upon any major changes in procedures, guidelines or legislation, and otherwise on an annual basis.

Date	Outcome
October 2022	Original policy written
October 2023	No changes
October 2024	RTP Infographic update
October 2025	IOC Consensus / SCAT 6 updates

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Introduction

British Judo takes the health & safety of its members seriously, especially in the case of head injury or of an athlete becoming unconscious due to strangulation (shime-waza), either in the competition or training environment, regardless of the level or age of the competitor. Since the 1970's the medical profession and the scientific community have begun to differentiate sports related concussion and traumatic brain injury from other causes (such as road traffic accidents, etc.). Their management is driven by sporting bodies and the International Olympic Committee, who see the need to have clear and practical guidelines in place for their detection, treatment, and to guide return to play.

Minor head injuries & knocks to the head are common, particularly in children. Following the injury, if the person is conscious (awake) and there is no deep laceration or severe head damage, it is unusual for there to be any underlying damage to the brain. However, sometimes head injuries can be more serious and may result in unconsciousness and / or concussion. Serious neurologic injury can also occur following the application of Shime-waza techniques, during which the blood flow to the brain is temporarily disrupted due to strangulation.

This protocol applies to the following scenarios:

1. Unconsciousness resulting from a direct blow to the head, face, neck or elsewhere on the body where an impulse force is transmitted through to the head and may result in the player being concussed
2. Concussion may occur without the player being knocked out and losing consciousness – it must always be considered a possibility in any player with a compatible mechanism of injury, and must be taken seriously
3. Unconsciousness resulting from the application of Shime-waza (strangulation technique) if the player fails to submit

BRITISH JUDO ENCOURAGES ANYONE WHO HAS CONCERNS FOLLOWING A HEAD INJURY OR STRANGULATION TO THEMSELVES OR TO ANOTHER PERSON, REGARDLESS OF THE INJURY SEVERITY, TO SEEK IMMEDIATE MEDICAL ADVICE.

What is Concussion?

Concussion can be defined as a disturbance in brain function caused by a direct or indirect traumatic force to the head, resulting in a variety of non-specific signs & symptoms, which may or may not include unconsciousness. The brain can swell and when its normal function is disrupted, it can affect mental stamina & function, causing the brain to work longer & harder to complete even trivial / every-day tasks. Concussion is a recognised and important injury in sport. It can result from many types of incidents, but issues arise from sports-related concussions because rapid decisions need to be made about safe continuation / return to play.

ULTIMATELY ALL CONCUSSIONS NEED TO BE TAKEN SERIOUSLY BECAUSE THEY ARE A TYPE OF TRAUMATIC BRAIN INJURY!

Second Impact Syndrome

Second impact syndrome is a rare condition in which a second brain insult (concussion or strangulation) occurs before the brain has recovered from the first one, causing rapid and severe brain swelling. It can result from even a very mild concussion or strangulation that occurs days or weeks after the initial injury. Second impact syndrome can cause a severe and catastrophic brain injury, leading to long term symptoms / disability and prolonged time away from sport / employment / education.

What are the effects of Shime-Waza?

Strangulation is common in Judo & other combat sports. Strangulation is defined as the application of external pressure to the vasculature (blood vessels) and the airway conducting systems. It can quickly result in the loss of consciousness and carries a risk of associated injuries such as laryngeal (voice box) fracture, airway swelling & blunt cerebrovascular injuries (strokes). As the blood flow to the brain is reduced, loss of consciousness commonly occurs quickly, in 6-15 seconds.

The brain doesn't tolerate lack of oxygen (hypoxia) well, resulting in permanent neurologic injury or death in 3-5 minutes. The quicker brain blood flow and therefore oxygenation can be restored, the lower the chance of temporary or more permanent neurologic compromise, so it is important that coaches / referees are very vigilant and stop play as soon as possible in the event of unconsciousness by strangulation. As well as unconsciousness, athletes may experience brief seizure activity, which appears similar to epileptic seizures, with a gradual return to normal after removal of the strangle force. In otherwise healthy people, the brain function returns to normal following the strangulation episode. However, strangulation does represent a hypoxic brain injury, no matter how brief, and the brain therefore needs time to recover from the injury, in the same way as it does following concussion injuries.

As strangulation results in compression of vascular structures, there is a potential of secondary injuries in athletes who have other co-existing medical conditions. For example, if an athlete has pre-existing carotid artery disease (narrowing of the arteries in the neck), then less pressure is required to occlude the vessels, and the risk of a stroke is significantly higher.

Recognition of concussion / brain injury

The recognition and evaluation of an athlete with neurologic compromise from either concussion or a strangulation injury in the training or competition environment can be challenging.

Typical signs are:

- *Headache*
- *Nausea*
- *Confusion*
- *Dizziness*
- *Unsteadiness / loss of balance*
- *Feeling stunned / dazed*
- *Double vision*
- *Seeing stars / lights*
- *Ringing in the ears*
- *Slurred speech*
- *Poor concentration*

Typical symptoms are:

- *Loss of / reduced consciousness*
- *Fits / seizures*
- *Easily distracted / unable to concentrate on tasks*
- *Vomiting*
- *Poor co-ordination / balance*
- *Slow to answer questions or follow instructions*
- *Displaying inappropriate emotions (eg. Laughing, crying)*
- *Slurred speech*
- *personality changes*
- *decreased fighting ability*
- *disorientation*
- *amnesia (loss of memory)*

If an athlete displays any of the above signs and symptoms, neurologic compromise or a concussion should be considered, and the athlete should be withdrawn from competition or training immediately for further assessment. This point is paramount – any athlete suspected of having a concussion must initially be treated as though they are concussed, withdrawn from competition or training immediately and assessed by a health care professional (HCP) – usually a physiotherapist or doctor.

IF IN DOUBT, SIT THEM OUT!

Adverse (RED FLAG) Signs

Any of the following signs or symptoms are regarded as adverse or red flag signs, which could indicate a more severe underlying brain injury, from either a head injury or strangulation. An athlete either displaying or who develops any of these signs or symptoms must seek immediate help from a health care professional or be taken urgently to the nearest Accident & Emergency Department.

Adverse signs / Red Flag symptoms:

- ***Increasingly restless, agitated or combative***
- ***Deteriorating conscious state***
- ***Persistent new double vision***
- ***Suspicion of skull fracture***
- ***Neck pain or tenderness***
- ***Seizures or convulsions***
- ***Tingling or pins & needles sensation***
- ***Limb weakness***
- ***Loss of consciousness for longer than 1 minute***
- ***Children***
- ***Persistent vomiting***
- ***Persistent / worsening headache***
- ***High risk medical problems – eg. Blood clotting disorders, blood thinning medication***
- ***Altered sensorium due to other reasons – eg. Drugs, alcohol, epilepsy, learning difficulties, etc.***
- ***Lack of responsible adult to supervise post-injury***
- ***More than 1 other concussion / strangulation injury within 3 months***

Immediate mat side treatment

Frequently head injuries & strangulations will occur in the club environment, where HCP's are not present mat side during training or competitions. However, the immediate removal of the Judoka from the mat is paramount after a brain injury, due to either a head injury or strangulation. The initial suspicion of concussion or strangulation is therefore often made by the coach or a fellow athlete. Education on the first aid assessment of head injury and strangulation is therefore paramount for all coaches and Judoka. Remember – in British Judo we've got each other's backs!

We recommend the use of the Concussion Recognition Tool 6 (CRT6) by all non-health care professionals to help identify concussion (or potential brain injury from strangulations) in children, adolescents & adults (see appendix 1).

Maddox questions are a basic memory assessment tool which have been validated for the side-line determination of the risk of concussion and are a useful tool for non-health care professionals to confirm that a risk of concussion is present. If an athlete gets 1 question wrong, they must be removed from the field of play immediately.

Maddox Questions:	***Suggestions to be more judo-specific:***
What venue are we at today?	
Which half is it now?	*How far into this fight are we?*
Who scored the last in this match?	
What team did you play in the last match / game?	*Who did you fight in your last fight / competition?*
Did your team win the last game?	*Did you win your last fight?*

If there is any doubt that an athlete has sustained a concussion or strangulation injury, always err on the side of caution & remove immediately from the field of play for further expert assessment.

On the field of play, the first aid principles of Danger, Response, Airway, Breathing, Circulation should be followed. For non-HCP's, do not attempt to move the injured athlete (except for urgent airway management) unless you are trained to do so. Both head injuries and strangulation injuries present a significant risk for the athlete having a concomitant neck or spinal cord injury, so assessment for these must be done on the field of play before they are moved.

Signs and symptoms of a brain injury evolve over time (in both concussion & strangulation). It is therefore important that any athlete suspected of or who has had a head or strangulation injury is supervised by a responsible adult who can be alert to the development of deteriorating or red flag symptoms. If they do, the athlete should be taken immediately to the nearest Accident & Emergency Department.

When HCP's are present, the athlete should be assessed using standard Advanced Trauma Life Support trauma care principles to exclude concomitant injuries. After an initial rest period of 10 minutes, a neurocognitive assessment should be carried out using the SCAT 6 (Sports Concussion Assessment Tool) assessment (see appendix 2) or Child SCAT6 (see appendix 3) and compared to the athlete's baseline. The HCP can use their professional judgement regarding return to play that day or initiation of the graduated return to play protocol.

An athlete ***must not*** return to play that day, but must be assessed by an HCP & complete the graduated return to play protocol prior to any further Judo training / competitions if:

- They are under 19 years old
- They have been unconscious for any length of time
- They have had any seizure activity or twitching
- They have any adverse / red flag signs
- Their mechanism of injury is compatible with a significant head or strangulation injury
- Their CRT6 assessment suggests a concussion / brain injury has been sustained
- They have not been assessed by an HCP

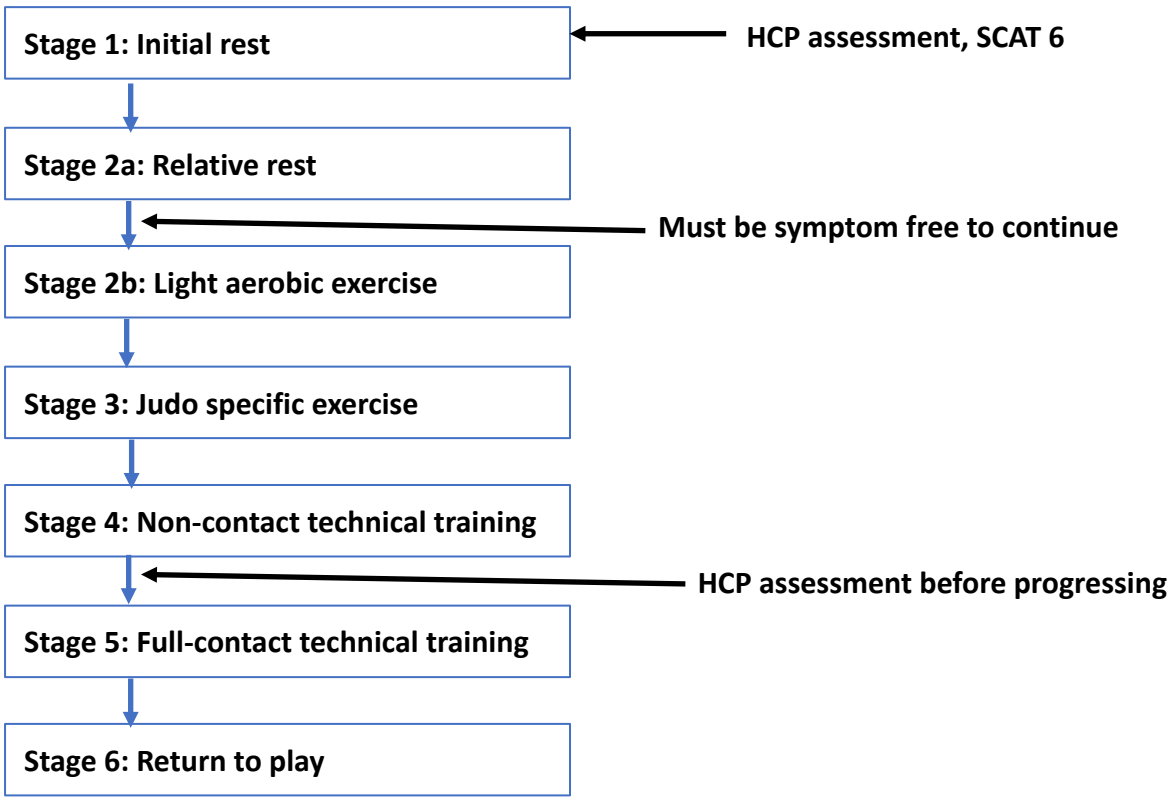
- Their SCAT6 assessment is not comparable to their baseline
- They have had a previous or suspected head injury / strangulation in the preceding 3 months

IF IN DOUBT, SIT THEM OUT!

The BJA concussion and strangulation advice sheet can be given to the responsible adult supervising the injured judoka (see appendix 5).

Graduated return to play (RTP)

All World Class Performance Programme athletes follow the BJA Judo Specific Graduated Return to Play Protocol after any suspected brain injury from either a head injury or strangulation injury. The BJA recommends that the following protocols are also implemented by the club coaches and officials. In the club setting, the HCP may need to be the athletes GP. Serial SCAT 6 assessments are used to guide the athletes progress and readiness to return to play.



Stage	Aim	Details / Judo Specific Activities
1	**Initial rest** *(mind & body)*	24-48 hrs Complete physical & cognitive rest (no exercise, minimize screen time on electronics, time off work / study) Review by HCP & SCAT 6 assessment ASAP after injury (at earliest 10 mins after)
2a	**Relative rest**	14 days Return to normal daily activities that don't provoke symptoms Must be symptom free at end of this stage before continuing
2b	**Light aerobic exercise** *(increase heart rate)*	5 x 4mins on / 4 mins off session (total of 20 mins work in a 40 min session) Work to <70% maximum heart rate Light bike / jogging / walk / swim. No resistance training
3	**Judo specific exercise** *(add in Judo movements)*	Total session time <45 mins, regular 3-4 min rest intervals to ensure no symptoms Work to <80% maximum heart rate No head impact. Banded Uchikomi (no Uke), ladder drills, Ashi-waza with cones
4	**Non-contact technical training** *(increase exercise, co-ordination & cognitive load)*	Must return to work / education before returning to judo S&C: Progressive loadings 50-75% & start resistance training Total session time <60 mins, regular 3-4 min rest intervals to ensure no symptoms Work to <90% maximum heart rate No head impact. Stand grip fighting, Uchikomi with Uke. No Nagekomi, Ne-waza, Tachi-waza Must have clearance from HCP / GP before progressing to next stage
5	**Full-contact technical training** *(increase Judo confidence & assess functional skills)*	S&C: progressive loadings 75% - normal pre-injury activity Full unrestricted Uchikomi & Nagekomi, open play Ne-waza &Tachi-waza Regular 3-4 min rest intervals to ensure no symptoms Mush be supervised by Judo coach to assess if back to normal self
6	**Return to play**	Return to open play Randori

The content of the graduated return to play is the same for all age groups and all skill levels, but the duration of each stage is dependent on age and level.

Minimal timings for Graduated Return to Play in Under 19's

The impact of a brain injury from either a concussion or strangulation can be more profound in children & young people, whose brains are still developing. They behave differently to adults and more damage can occur silently without subjective symptoms being evident. They need more observation and MUST be assessed by an HCP, which may be in A&E, on the day of the injury. The Child SCAT6 assessment tool should be used for under 12's (appendix 3). An age limit of 19 is used in line with current best evidence & in line with other UK based sports such as Football & Rugby.

Minimum timings:

- 24-48 hours for stage 1, or until symptom free
- 14 days for stage 2a (relative rest)
- 48 hours at stages 2b-6

Athletes must be symptom free before starting or progressing to the next stage.

If symptoms develop, the athlete should have full rest for a minimum of 48 hours, or until symptom free, then resume the graduated RTP at the level below.

Minimal timings for Graduated Return to Play in Age 19 & over

Minimum timings:

- 24-48 hours for stage 1, or until symptom free
- 14 days for stage 2a (relative rest)
- 24 hours at stages 2b-6

Athletes must be symptom free before starting or progressing to the next stage.

If symptoms develop, the athlete should have full rest for a minimum of 24 hours, or until symptom free, then resume the graduated RTP at the level below.

Athletes with other medical problems which places them at higher risk, veteran athletes, or those with a history of previous brain injury in the preceding 6 months should consider the slower RTP schedule as followed by under 19's.

Minimal timings for Enhanced Graduated Return to Play in Age 19 & over

This is only applicable to athletes on the GB World Class Performance Programme, based at the National Training Centre, who have full time daily expert medical supervision by HCP's trained in complex concussion management and rehab.

Minimum timings:

- 24 hours for stage 1, or until symptom free
- 24 for stage 2a (relative rest)
- 24 hours at stages 2b-6

Athletes must be symptom free before starting or progressing to the next stage.

If symptoms develop, the athlete should have full rest for a minimum of 24 hours, or until symptom free, then resume the standard (non-enhanced) age 19 & over graduated RTP at the level below.

Education

Education on the first aid assessment of head injury and strangulation is paramount for all coaches and Judoka at all levels in order to reduce the impact of these injuries. There are several excellent e-learning modules available online, including:

- HEADCASE, England rugby (https://www.englandrugby.com/participation/playing/headcase)
- ConcussEd (https://www.concussioneducation.co.uk)
- NHS Head injury & Concussion (https://www.nhs.uk/conditions/head-injury-and-concussion/)

A BJA Graduated RTP protocol infographic is available in appendix 4 or can be downloaded from the BJA website, for display and dissemination to all BJA clubs, coaches & Judoka.

If a club or region have specific educational requirements regarding head injury or strangulation, please contact the CMO directly to discuss.

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Appendices

Appendix 1 Concussion Recognition Tool – 6th edition (CRT6)

Appendix 2 Sports Concussion Assessment Tool – 6th edition (SCAT 6)

Appendix 3 Child Sports Concussion Assessment Tool – 6th edition (Child SCAT 6)

Appendix 4 BJA Judo specific Graduated RTP Infographic

Appendix 5 BJA Concussion & Strangulation Advice Sheet

Appendix 1

Concussion Recognition Tool – 6th edition (CRT6)

CRT6™

Concussion Recognition Tool

To Help Identify Concussion in Children, Adolescents and Adults

What is the Concussion Recognition Tool?

A concussion is a brain injury. The Concussion Recognition Tool 6 (CRT6) is to be used by non-medically trained individuals for the identification and immediate management of suspected concussion. It is not designed to diagnose concussion.

Recognise and Remove

Red Flags: CALL AN AMBULANCE

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

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

Remember

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

If there are no Red Flags, identification of possible concussion should proceed as follows:

Concussion should be suspected after an impact to the head or body when the athlete seems different than usual. Such changes include the presence of **any one or more** of the following: visible clues of concussion, signs and symptoms (such as headache or unsteadiness), impaired brain function (e.g. confusion), or unusual behaviour.

CRT6™

Developed by: The Concussion in Sport Group (CISG)

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CRT6 Concussion Recognition Tool

To Help Identify Concussion in Children, Adolescents and Adults

1: Visible Clues of Suspected Concussion

Visible clues that suggest concussion include:

- Loss of consciousness or responsiveness
- Lying motionless on the playing surface
- Falling unprotected to the playing surface
- Disorientation or confusion, staring or limited responsiveness, or an inability to respond appropriately to questions
- Dazed, blank, or vacant look
- Seizure, fits, or convulsions
- Slow to get up after a direct or indirect hit to the head
- Unsteady on feet / balance problems or falling over / poor coordination / wobbly
- Facial injury

2: Symptoms of Suspected Concussion

Physical Symptoms
Headache
"Pressure in head"
Balance problems
Nausea or vomiting
Drowsiness
Dizziness
Blurred vision
More sensitive to light
More sensitive to noise
Fatigue or low energy
"Don't feel right"
Neck Pain

Changes in Emotions
More emotional
More Irritable
Sadness
Nervous or anxious

Changes in Thinking
Difficulty concentrating
Difficulty remembering
Feeling slowed down
Feeling like "in a fog"

Remember, symptoms may develop over minutes or hours following a head injury.

3: Awareness

(Modify each question appropriately for each sport and age of athlete)

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

"Where are we today?"

"What event were you doing?"

"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 PRACTICE OR PLAY and should NOT RETURN TO ANY ACTIVITY WITH RISK OF HEAD CONTACT, FALL OR COLLISION, including SPORT ACTIVITY until ASSESSED MEDICALLY, even if the symptoms resolve.

Athletes with suspected concussion should **NOT**:

- Be left alone initially (at least for the first 3 hours). Worsening of symptoms should lead to immediate medical attention.
- Be sent home by themselves. They need to be with a responsible adult.
- Drink alcohol, use recreational drugs or drugs not prescribed by their HCP
- Drive a motor vehicle until cleared to do so by a healthcare professional

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Appendix 2

Sports Concussion Assessment Tool – 6th edition (SCAT6)

SCAT6™

Sport Concussion Assessment Tool

For Adolescents (13 years +) & Adults

What is the SCAT6?

The SCAT6 is a standardised tool for evaluating concussions designed for use by Health Care Professionals (HCPs). The SCAT6 cannot be performed correctly in less than 10-15 minutes. Except for the symptoms scale, the SCAT6 is intended to be used in the acute phase, ideally within 72 hours (3 days), and up to 7 days, following injury. If greater than 7 days post-injury, consider using the SCOAT6/Child SCOAT6.

The SCAT6 is used for evaluating athletes aged 13 years and older. For children aged 12 years or younger, please use the Child SCAT6.

If you are not an HCP, please use the Concussion Recognition Tool 6 (CRT6).

Preseason baseline testing with the SCAT6 can be helpful for interpreting post-injury test scores but is not required for that purpose. Detailed instructions for use of the SCAT6 are provided as a supplement. Please read through these instructions carefully before testing the athlete. Brief verbal instructions for each test are given in ***blue italics***. The only equipment required for the examiner is athletic tape and a watch or timer.

Recognise and Remove

A head impact by either a direct blow or indirect transmission of force to the head can be associated with serious and potentially fatal consequences. If there are significant concerns, which may include any of the Red Flags listed in Box 1, the athlete requires urgent medical attention, and if a qualified medical practitioner is not available for immediate assessment, then activation of emergency procedures and urgent transport to the nearest hospital or medical facility should be arranged.

Completion Guide

Orange: Optional part of assessment

Key Points

- Any athlete with suspected concussion should be REMOVED FROM PLAY, medically assessed, and monitored for injury-related signs and symptoms, including deterioration of their clinical condition.
- No athlete diagnosed with concussion should return to play on the day of injury.
- If an athlete is suspected of having a concussion and medical personnel are not immediately available, the athlete should be referred (or transported if needed) to a medical facility for assessment.
- Athletes with suspected or diagnosed concussion should not take medications such as aspirin or other anti-inflammatories, sedatives or opiates, drink alcohol or use recreational drugs and should not drive a motor vehicle until cleared to do so by a medical professional.
- Concussion signs and symptoms may evolve over time; it is important to monitor the athlete for ongoing, worsening, or the development of additional concussion-related symptoms.
- The diagnosis of concussion is a clinical determination made by an HCP.
- The SCAT6 should NOT be used by itself to make, or exclude, the diagnosis of concussion. It is important to note that an athlete may have a concussion even if their SCAT6 assessment is within normal limits.

Remember

- The basic principles of first aid should be followed: assess danger at the scene, athlete responsiveness, airway, breathing, and circulation.
- Do not attempt to move an unconscious/unresponsive athlete (other than what is required for airway management) unless trained to do so.
- Assessment for a spinal and/or spinal cord injury is a critical part of the initial on-field evaluation. Do not attempt to assess the spine unless trained to do so.
- Do not remove a helmet or any other equipment unless trained to do so safely.

For use by Health Care Professionals Only **SCAT6™**

Developed by: The Concussion in Sport Group (CISG)

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SCAT6™ Sport Concussion Assessment Tool

For Adolescents (13 years +) & Adults

Athlete Name:				**ID Number:**	
Date of Birth:		**Date of Examination:**		**Date of Injury:**	
Time of Injury:		**Sex:** Male ☐	Female ☐	Prefer Not To Say ☐	Other
Dominant Hand: Left ☐	Right ☐	Ambidextrous ☐		**Sport/Team/School:**	
Current Year in School (if applicable):				**Years of Education Completed (Total):**	
First Language:				**Preferred Language:**	
Examiner:					

Concussion History

How many diagnosed concussions has the athlete had in the past?:

When was the most recent concussion?:

Primary Symptoms:

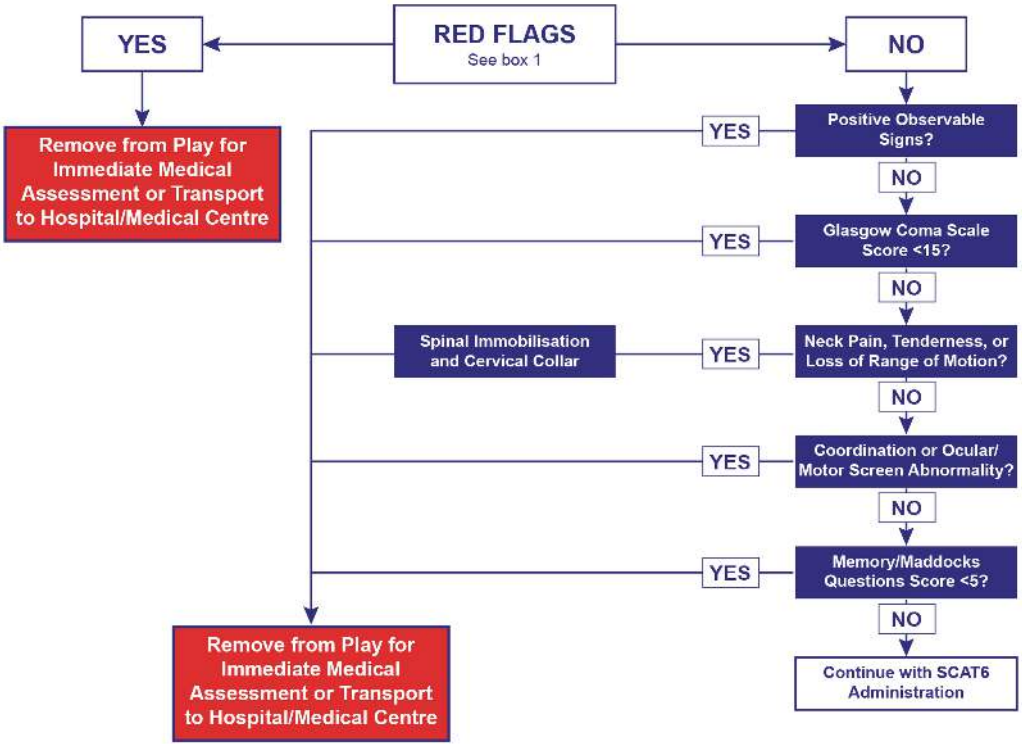
How long was the recovery (time to being cleared to play) from the most recent concussion?: **(Days)**

Immediate Assessment/Neuro Screen (Not Required at Baseline)

The following elements should be used in the evaluation of all athletes who are suspected of having a concussion prior to proceeding to the cognitive assessment, and ideally should be completed "on-field" after the first aid/emergency care priorities are completed.

If any of the observable signs of concussion are noted after a direct or indirect blow to the head, the athlete should be immediately and safely removed from participation and evaluated by an HCP.

The Glasgow Coma Scale is important as a standard measure for all patients and can be repeated over time to monitor deterioration of consciousness. The Maddocks questions and cervical spine exam are also critical steps of the immediate assessment.



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Step 1: Observable Signs

Witnessed ☐ Observed on Video ☐

Lying motionless on playing surface	Y	N
Falling unprotected to the surface	Y	N
Balance/gait difficulties, motor incoordination, ataxia: stumbling, slow/laboured movements	Y	N
Disorientation or confusion, staring or limited responsiveness, or an inability to respond appropriately to questions	Y	N
Blank or vacant look	Y	N
Facial injury after head trauma	Y	N
Impact seizure	Y	N
High-risk mechanism of injury (sport-dependent)	Y	N

Step 2: Glasgow Coma Scale

Typically, GCS is assessed once. Additional scoring columns are provided for monitoring over time, if needed.

Time of Assessment:

Date of Assessment:

Best Eye Response (E)			
No eye opening	1	1	1
Eye opening to pain	2	2	2
Eye opening to speech	3	3	3
Eyes opening spontaneously	4	4	4
Best Verbal Response (V)			
No verbal response	1	1	1
Incomprehensible sounds	2	2	2
Inappropriate words	3	3	3
Confused	4	4	4
Oriented	5	5	5
Best Motor Response (V)			
No motor response	1	1	1
Extension to pain	2	2	2
Abnormal flexion to pain	3	3	3
Flexion/withdrawal to pain	4	4	4
Localized to pain	5	5	5
Obeys commands	6	6	6
Glasgow Coma Score (E + V + M)			

Box 1: Red Flags

- Neck pain or tenderness
- Seizure or convulsion
- Double vision
- Loss of consciousness
- Weakness or tingling/burning in more than 1 arm or in the legs
- Deteriorating conscious state
- Vomiting
- Severe or increasing headache
- Increasingly restless, agitated or combative
- GCS <15
- Visible deformity of the skull

Step 3: Cervical Spine Assessment

In a patient who is not lucid or fully conscious, a cervical spine injury should be assumed and spinal precautions taken.

Does the athlete report neck pain at rest?	Y	N
Is there tenderness to palpation?	Y	N
If NO neck pain and NO tenderness, does the athlete have a full range of ACTIVE pain free movement?	Y	N
Are limb strength and sensation normal?	Y	N

Step 4: Coordination & Ocular/Motor Screen

Coordination: Is finger-to-nose normal for both hands with eyes open and closed?	Y	N
Ocular/Motor: Without moving their head or neck, can the patient look side-to-side and up-and-down without double vision?	Y	N
Are observed extraocular eye movements normal? If not, describe:	Y	N

Step 5: Memory Assessment Maddocks Questions[1]

Say *"I am going to ask you a few questions, please listen carefully and give your best effort. First, tell me what happened?"*

Modified Maddocks questions (Modified appropriately for each sport; 1 point for each correct answer)

What venue are we at today?	0	1
Which half is it now?	0	1
Who scored last in this match?	0	1
What team did you play last week/game?	0	1
Did your team win the last game?	0	1
Maddocks Score		/5

Note: Appropriate sport-specific questions may be substituted

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Off-Field Assessment

Please note that the cognitive assessment should be done in a distraction-free environment with the athlete in a resting state **after** completion of the Immediate Assessment/Neuro Screen.

Step 1: Athlete Background

Has the athlete ever been:

Hospitalised for head injury? (If yes, describe below)	**Y N**	**Diagnosed with attention deficit hyperactivity disorder (ADHD)?**	**Y N**
Diagnosed/treated for headache disorder or migraine?	**Y N**	**Diagnosed with depression, anxiety, or other psychological disorder?**	**Y N**
Diagnosed with a learning disability/dyslexia?	**Y N**		

Notes:

Current medications? If yes, please list:

Step 2: Symptom Evaluation

Baseline: ☐ **Suspected/Post-injury:** ☐ **Time elapsed since suspected injury:** _____ mins/hours/days

The athlete will complete the symptom scale (below) after you provide instructions. Please note that the instructions are different for baseline versus suspected/post-injury evaluations.

Baseline: Say ***"Please rate your symptoms below based on how you typically feel with "1" representing a very mild symptom and "6" representing a severe symptom."***

Suspected/Post-injury: Say ***"Please rate your symptoms below based on how you feel now with "1" representing a very mild symptom and "6" representing a severe symptom."***

PLEASE HAND THE FORM TO THE ATHLETE

Symptom	Rating
Headaches	0 1 2 3 4 5 6
Pressure in head	0 1 2 3 4 5 6
Neck pain	0 1 2 3 4 5 6
Nausea or vomiting	0 1 2 3 4 5 6
Dizziness	0 1 2 3 4 5 6
Blurred vision	0 1 2 3 4 5 6
Balance problems	0 1 2 3 4 5 6
Sensitivity to light	0 1 2 3 4 5 6
Sensitivity to noise	0 1 2 3 4 5 6
Feeling slowed down	0 1 2 3 4 5 6
Feeling like "in a fog"	0 1 2 3 4 5 6
"Don't feel right"	0 1 2 3 4 5 6
Difficulty concentrating	0 1 2 3 4 5 6
Difficulty remembering	0 1 2 3 4 5 6
Fatigue or low energy	0 1 2 3 4 5 6
Confusion	0 1 2 3 4 5 6
Drowsiness	0 1 2 3 4 5 6
More emotional	0 1 2 3 4 5 6
Irritability	0 1 2 3 4 5 6
Sadness	0 1 2 3 4 5 6
Nervous or anxious	0 1 2 3 4 5 6
Trouble falling asleep (if applicable)	0 1 2 3 4 5 6

Do your symptoms get worse with physical activity?	**Y N**
Do your symptoms get worse with mental activity?	**Y N**

If 100% is feeling perfectly normal, what percent of normal do you feel?

If not 100%, why?

PLEASE HAND THE FORM BACK TO THE EXAMINER

Once the athlete has completed answering all symptom items, it may be useful for the clinician to revisit items that were endorsed positively to gather more detail about each symptom.

Total number of symptoms: _____ **of 22** **Symptom severity score:** _____ **of 132**

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Step 3: Cognitive Screening (Based on Standardized Assessment of Concussion; SAC)[2]

Orientation

What month is it?	0 1
What is the date today?	0 1
What is the day of the week?	0 1
What year is it?	0 1
What time is it right now? (within 1 hour)	0 1
Orientation Score	of 5

Immediate Memory

All 3 trials must be administered irrespective of the number correct on Trial 1. Administer at the rate of one word per second.

Trial 1: Say ***"I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order."***

Trials 2 and 3: Say ***"I am going to repeat the same list. Repeat back as many words as you can remember in any order, even if you said the word before in a previous trial."***

Word list used: A ☐ B ☐ C ☐

				Alternate Lists	
List A	**Trial 1**	**Trial 2**	**Trial 3**	**List B**	**List C**
Jacket	0 1	0 1	0 1	Finger	Baby
Arrow	0 1	0 1	0 1	Penny	Monkey
Pepper	0 1	0 1	0 1	Blanket	Perfume
Cotton	0 1	0 1	0 1	Lemon	Sunset
Movie	0 1	0 1	0 1	Insect	Iron
Dollar	0 1	0 1	0 1	Candle	Elbow
Honey	0 1	0 1	0 1	Paper	Apple
Mirror	0 1	0 1	0 1	Sugar	Carpet
Saddle	0 1	0 1	0 1	Sandwich	Saddle
Anchor	0 1	0 1	0 1	Wagon	Bubble
Trial Total					

Immediate Memory Score	of 30	**Time Last Trial Completed:**	

Step 3: Cognitive Screening (Continued)

Concentration

Digits Backward:

Administer at the rate of one digit per second reading DOWN the selected column. If a string is completed correctly, move on to the string with next higher number of digits; if the string is completed incorrectly, use the alternate string with the same number of digits; if this is failed again, end the test.

Say ***"I'm going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7. So, if I said 9-6-8 you would say? (8-6-9)"***

Digit list used: A ☐ B ☐ C ☐

List A	List B	List C			
4-9-3	5-2-6	1-4-2	Y	N	0 1
6-2-9	4-1-5	6-5-8	Y	N	
3-8-1-4	1-7-9-5	6-8-3-1	Y	N	0 1
3-2-7-9	4-9-6-8	3-4-8-1	Y	N	
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	N	0 1
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	N	
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	N	0 1
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	N	
			Digits Score		of 4

Months in Reverse Order:

Say ***"Now tell me the months of the year in reverse order as QUICKLY and as accurately as possible. Start with the last month and go backward. So, you'll say December, November… go ahead"***

Start stopwatch and CIRCLE each correct response:

December November October September August July June May April March February January

Time Taken to Complete (secs): _____ **Number of Errors:** _____

1 point if no errors and completion under 30 seconds

Months Score: _____ **of 1**

Concentration Score (Digits + Months) _____ **of 5**

Step 4: Coordination and Balance Examination

Modified Balance Error Scoring System (mBESS)[3] testing

(see detailed administration instructions)

Foot Tested: **Left** ☐ **Right** ☐ (i.e. test the **non-dominant** foot)

Testing Surface (hard floor, field, etc.): _____

Footwear (shoes, barefoot, braces, tape etc.): _____

OPTIONAL (depending on clinical presentation and setting resources): For further assessment, the same 3 stances can be performed on a surface of medium density foam (e.g., approximately 50cm x 40cm x 6cm) with the same instructions and scoring.

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Step 4: Coordination and Balance Examination (Continued)

Modified BESS

(20 seconds each)

Double Leg Stance:		**of 10**
Tandem Stance:		**of 10**
Single Leg Stance:		**of 10**
Total Errors:		**of 30**

On Foam (Optional)

Double Leg Stance:		**of 10**
Tandem Stance:		**of 10**
Single Leg Stance:		**of 10**
Total Errors:		**of 30**

Note: If the **mBESS** yields normal findings then proceed to the **Tandem Gait/Dual Task Tandem Gait**.

If the **mBESS** reveals abnormal findings or clinically significant difficulties, **Tandem Gait** is not necessary at this time.

Both the **Tandem Gait** and optional **Dual Task** component may be administered later in the office setting as needed (see SCOAT6).

Timed Tandem Gait

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed. Please complete all 3 trials.

Say ***"Please walk heel-to-toe quickly to the end of the tape, turn around and come back as fast as you can without separating your feet or stepping off the line."***

Single Task:

Time to Complete Tandem Gait Walking (seconds)				
Trial 1	**Trial 2**	**Trial 3**	**Average 3 Trials**	**Fastest Trial**

Dual Task Gait (Optional. Timed Tandem Gait must be completed first)

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed.

Say ***"Now, while you are walking heel-to-toe, I will ask you to count backwards out loud by 7s. For example, if we started at 100, you would say 100, 93, 86, 79. Let's practise counting. Starting with 93, count backward by sevens until I say "stop"."*** Note that this practice only involves counting backwards.

Dual Task Practice: Circle correct responses; record number of subtraction counting errors.

Task									Errors	Time
Practice	**93**	**86**	**79**	**72**	**65**	**58**	**51**	**44**		

Say ***"Good. Now I will ask you to walk heel-to-toe and count backwards out loud at the same time. Are you ready? The number to start with is 88. Go!"***

Dual Task Cognitive Performance: Circle correct responses; record number of subtraction counting errors.

Task														Errors	Time (circle fastest)
Trial 1	**88**	**81**	**74**	**67**	**60**	**53**	**46**	**39**	**32**	**25**	**18**	**11**	**4**		
Trial 2	**90**	**83**	**76**	**69**	**62**	**55**	**48**	**41**	**34**	**27**	**20**	**13**	**6**		
Trial 3	**98**	**91**	**84**	**77**	**70**	**63**	**56**	**49**	**42**	**35**	**28**	**21**	**14**		

Alternate double number starting integers may be used and recorded below.

Starting Integer: **Errors:** **Time:**

Step 4: Coordination and Balance Examination (Continued)

Were any single- or dual-task, timed tandem gait trials not completed due to walking errors or other reasons?

Yes ☐ **No** ☐

If yes, please explain why:

Step 5: Delayed Recall

The Delayed Recall should be performed after **at least 5 minutes** have elapsed since the end of the Immediate Memory section: **Score 1 point for each correct response.**

Say ***"Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order."***

Time started:

Word list used: **A** ☐ **B** ☐ **C** ☐

List A	Score	Alternate Lists: List B	Alternate Lists: List C
Jacket	0 1	Finger	Baby
Arrow	0 1	Penny	Monkey
Pepper	0 1	Blanket	Perfume
Cotton	0 1	Lemon	Sunset
Movie	0 1	Insect	Iron
Dollar	0 1	Candle	Elbow
Honey	0 1	Paper	Apple
Mirror	0 1	Sugar	Carpet
Saddle	0 1	Sandwich	Saddle
Anchor	0 1	Wagon	Bubble
Delayed Recall Score	of 10		

Total Cognitive Score

Orientation:		**of 5**
Immediate Memory:		**of 30**
Concentration:		**of 5**
Delayed Recall:		**of 10**
Total:		**of 50**

If the athlete was known to you prior to their injury, are they different from their usual self?

Yes ☐ **No** ☐ **Not applicable** ☐ (If different, describe why In the clinical notes section)

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Step 6: Decision

Domain	Date:	Date:	Date:
Neurological Exam (Acute Injury evaluation only)	Normal/Abnormal	Normal/Abnormal	Normal/Abnormal
Symptom number (of 22)			
Symptom Severity (of 132)			
Orientation (of 5)			
Immediate Memory (of 30)			
Concentration (of 5)			
Delayed Recall (of 10)			
Cognitive Total Score (of 50)			
mBESS Total Errors (of 30)			
Tandem Gait fastest time			
Dual Task fastest time			

Disposition

Concussion diagnosed?

Yes ☐ **No** ☐ **Deferred** ☐

Health Care Professional Attestation

I am an HCP and I have personally administered or supervised the administration of this SCAT6.

Name:

Signature: **Title/Speciality:**

Registration/License number (if applicable): **Date:**

Additional Clinical Notes

Note: Scoring on the SCAT6 should not be used as a stand-alone method to diagnose concussion, measure recovery, or make decisions about an athlete's readiness to return to sport after concussion. Remember: An athlete can score within normal limits on the SCAT6 and still have a concussion.

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Appendix 3

Child Sports Concussion Assessment Tool – 6th edition (Child SCAT6)

Child SCAT6™

Sport Concussion Assessment Tool

For Children Ages 8 to 12 Years

What is the SCAT6?

The Child SCAT6 is a standardised tool for evaluating concussions in children ages 8-12 years, and designed for use by Health Care Professionals (HCP). The Child SCAT6 cannot be performed correctly in less than 10-15 minutes. The Child SCAT6 is intended to be used in the acute phase, ideally within 72 hours (3 days), and up to 7 days, following injury. If greater than 7 days post-injury consider using the Child Sport Concussion Office Assessment Tool 6 (Child SCOAT6).[1]

> The Child SCAT6 is used for evaluating children aged 8-12 years. For athletes aged 13 years or older, please use the SCAT6.[2]
>
> If you are not an HCP, please use the Concussion Recognition Tool 6 (CRT6).[3]

Detailed instructions for use of the Child SCAT6 are provided as a supplement. Please read through these instructions carefully before using the Child SCAT6. Brief verbal instructions for each test are given in ***blue italics***. The only equipment required for the examiner is athletic tape and a watch or timer.

Recognise and Remove

A head impact by either a direct blow or indirect transmission of force to the head can be associated with serious and potentially fatal consequences. If there are significant concerns, including any of the RED FLAGS listed in Box 1 indicating signs that require urgent medical attention, and if a qualified medical practitioner is not present for immediate sideline assessment, then activation of emergency procedures and urgent transport to the nearest hospital should be arranged.

Key Points

- Any child with suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, medically assessed, and monitored for injury-related signs, including deterioration of clinical condition.
- No child with a suspected concussion should be returned to play on the day of injury.
- If a child is suspected of having a concussion, and medical personnel are not immediately available, the child should be referred (or transported if needed) to a medical facility for assessment.
- Children with suspected or diagnosed concussion should not be given medications such as aspirin, anti-inflammatories, sedatives or opiates.
- Concussion signs and symptoms may evolve over time and it is important to monitor the child for ongoing, worsening, or development of concussion-related symptoms.
- The Child SCAT6 should not be used in isolation in making post-acute return to play decisions.
- The diagnosis of a concussion is a clinical determination made by a HCP. The Child SCAT6 should NOT be used by itself to make, or exclude, the diagnosis of concussion. It is important to note that a child may have a concussion even if their Child SCAT6 assessment is within normal limits.

Remember

- The basic principles of first aid should be followed: assess danger at the scene, child responsiveness, airway, breathing, and circulation.
- Do not attempt to move an unconscious/unresponsive child (other than that required for airway management) unless trained to do so.
- Assessment for a spinal and/or spinal cord injury is a critical part of the initial on-field assessment. Do not attempt to assess the spine unless trained to do so.
- Do not remove a helmet or any other equipment unless trained to do so safely.

Completion Guide

Blue: Required part of assessment

Orange: Optional part of assessment

For use by Health Care Professionals Only — **Child SCAT6™**

Developed by: The Concussion in Sport Group (CISG)

Supported by:

International Olympic Committee · FEI · FIA · FIFA · IIHF · World Rugby

Child SCAT6©

Sport Concussion Assessment Tool

For Children Ages 8 to 12 Years

Child Name:			
ID Number:		**Date of Birth:**	
Date of Examination:		**Date of Injury:**	**Time of Injury:**
Sex: Male ☐ Female ☐ Prefer Not To Say ☐		**Dominant Hand:** Left ☐ Right ☐ Ambidextrous ☐	
Sport/Team/School:		**Current Year/Grade Level in School:**	
First Language:		**Preferred Language:**	
Examiner:			

Concussion History

How many diagnosed concussions has the child had in the past?:	
When was the most recent concussion?:	
Primary Symptoms:	
How long was the recovery (time to being cleared to play) from the most recent concussion?:	**(Days)**

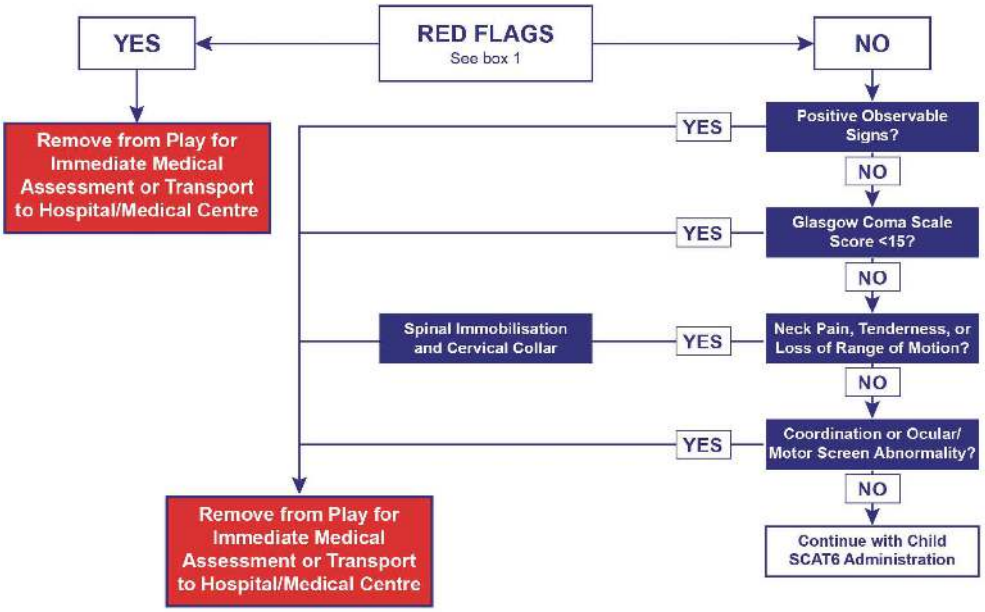
Immediate Assessment/Neuro Screen (Not Required at Baseline)

The following elements should be used in the evaluation of all children who are suspected of having a concussion prior to proceeding to the cognitive assessment, and ideally should be completed "on-field" after the first aid/emergency care priorities are completed.

If any of the observable signs of concussion are noted after a direct or indirect blow to the head, the child should be immediately and safely removed from participation and evaluated by a HCP.

Consideration of transportation to a medical facility should be at the discretion of the physician or HCP.

The Glasgow Coma Scale[4] is important as a standard measure for all patients and can be repeated over time to monitor deterioration of consciousness. The cervical spine examination is also a critical step in the immediate assessment.



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Step 1: Observable Signs

Witnessed ☐ Observed on Video ☐

Lying motionless on playing surface	Y	N
Falling unprotected to the surface	Y	N
Balance/gait difficulties, motor incoordination, ataxia: stumbling, slow/laboured movements	Y	N
Disorientation or confusion, staring or limited responsiveness, or an inability to respond appropriately to questions	Y	N
Blank or vacant look	Y	N
Facial injury after head trauma	Y	N
Impact seizure	Y	N
High-risk mechanism of injury (sport-dependent)	Y	N

Step 2: Glasgow Coma Scale[4]

Typically, GCS is assessed once. Additional scoring columns are provided for monitoring over time, if needed.

Time of Assessment:

Date of Assessment:

Best Eye Response (E)			
No eye opening	1	1	1
Eye opening to pain	2	2	2
Eye opening to speech	3	3	3
Eyes opening spontaneously	4	4	4

Best Verbal Response (V)			
No verbal response	1	1	1
Incomprehensible sounds	2	2	2
Inappropriate words	3	3	3
Confused	4	4	4
Oriented	5	5	5

Best Motor Response (V)			
No motor response	1	1	1
Extension to pain	2	2	2
Abnormal flexion to pain	3	3	3
Flexion/withdrawal to pain	4	4	4
Localized to pain	5	5	5
Obeys commands	6	6	6

Glasgow Coma Score (E + V + M)			

Box 1: Red Flags

- Neck pain or tenderness
- Seizure or convulsion
- Double vision
- Loss of consciousness
- Weakness or tingling/burning in more than 1 arm or in the legs
- Deteriorating conscious state
- Vomiting
- Severe or increasing headache
- Increasingly restless, agitated or combative
- GCS <15
- Visible deformity of the skull

Step 3: Cervical Spine Assessment

In a child who is not lucid or fully conscious, a cervical spine injury should be assumed and spinal precautions taken.

Does the child report neck pain at rest?	Y	N
Is there tenderness to palpation?	Y	N
If NO neck pain and NO tenderness, does the athlete have a full range of ACTIVE pain free movement?	Y	N
Are limb strength and sensation normal?	Y	N

Step 4: Coordination & Oculomotor Screen

Coordination: Is finger-to-nose normal for both hands with eyes open and closed?	Y	N
Ocular/Motor: Without moving their head or neck, can the patient look side-to-side and up-and-down without double vision?	Y	N
Are observed extraocular eye movements normal? If not, describe:	Y	N

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Off-Field Assessment

Please note that the cognitive assessment should be done in a distraction-free environment with the child in a resting state **after** completion of the Immediate Assessment/Neuro Screen.

Step 1: Child Background

Has the child ever been:

Hospitalised for head injury? (If yes, describe below)	Y N	Diagnosed with attention deficit hyperactivity disorder (ADHD)?	Y N
Diagnosed/treated for headache disorder or migraine?	Y N	Diagnosed with depression, anxiety, or other psychological disorder?	Y N
Diagnosed with a learning disability/dyslexia?	Y N		

Notes:

Is the child on any medications? If yes, please list:

Step 2: Symptom Evaluation - Child Report

Baseline: ☐ **Suspected/Post-injury:** ☐ **Time elapsed since suspected injury:** _____ mins/hours/days

The child will complete the symptom scale[5] (below) after you provide instructions. Please note that the instructions are different for baseline versus suspected/post-injury evaluations.

Baseline: Say ***"Please rate your symptoms below based on how you typically feel with "1" representing the symptom is a little and "3" representing the symptom is a lot."***

Suspected/Post-injury: Say ***"Please rate your symptoms below based on how you feel now with "1" representing the symptom is a little and "3" representing the symptom is a lot."***

PLEASE HAND THE FORM TO THE CHILD

Symptom	Not at all/never	A little/rarely	Somewhat/ sometimes	A lot/often
I have headaches	0	1	2	3
I feel dizzy	0	1	2	3
I feel like the room is spinning	0	1	2	3
I feel like I'm going to faint	0	1	2	3
Things are blurry when I look at them	0	1	2	3
I see double	0	1	2	3
I feel sick to my stomach	0	1	2	3
I get tired a lot	0	1	2	3
I get tired easily	0	1	2	3
I have trouble paying attention	0	1	2	3
I get distracted easily	0	1	2	3
I have a hard time concentrating	0	1	2	3
I have problems remembering what people tell me	0	1	2	3
I have problems following directions	0	1	2	3
I daydream too much	0	1	2	3
I get confused	0	1	2	3
I forget things	0	1	2	3
I have problems finishing things	0	1	2	3
I have trouble figuring things out	0	1	2	3
It's hard for me to learn new things	0	1	2	3
My neck hurts	0	1	2	3

Do the symptoms get worse with physical activity?	Y N
Do the symptoms get worse with trying to think?	Y N

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Step 2: Symptom Evaluation - Child Report (Continued)

Overall rating for child to answer:

On a scale of 0 to 10 (where 10 is normal), how do you feel now?	Very Bad 0	1	2	3	4	5	6	7	8	9	Very Good 10

If not 10, in what way do you feel different?

PLEASE HAND THE FORM BACK TO THE EXAMINER

Child Report: Total number of symptoms: _____ **of 21** **Symptom severity score:** _____ **of 63**

Step 2: Symptom Evaluation - Parent Report

PLEASE HAND THE FORM TO THE PARENT/GUARDIAN/CARER

The Child...	Not at all/never	A little/rarely	Somewhat/ sometimes	A lot/often
has headaches	0	1	2	3
feels dizzy	0	1	2	3
has a feeling that the room is spinning	0	1	2	3
feels faint	0	1	2	3
has blurred vision	0	1	2	3
has double vision	0	1	2	3
experiences nausea	0	1	2	3
gets tired a lot	0	1	2	3
gets tired easily	0	1	2	3
has trouble sustaining attention	0	1	2	3
is distracted easily	0	1	2	3
has difficulty concentrating	0	1	2	3
has problems remembering what he/she is told	0	1	2	3
has difficulty following directions	0	1	2	3
tends to daydream	0	1	2	3
gets confused	0	1	2	3
is forgetful	0	1	2	3
has difficulty completing tasks	0	1	2	3
has poor problem-solving skills	0	1	2	3
has problems learning	0	1	2	3
has a sore neck	0	1	2	3

Do the symptoms get worse with physical activity?	Y	N
Do the symptoms get worse with trying to think?	Y	N

Overall rating for parent/teacher/coach/carer to answer:

On a scale of 0 to 100% (where 100% is normal), how would you rate the child now?	

If not 100%, in what way does the child seem different?

PLEASE HAND THE FORM BACK TO THE EXAMINER

Parent Report: Total number of symptoms: _____ **of 21** **Symptom severity score:** _____ **of 63**

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Step 3: Cognitive Screening (Based on Standardized Assessment of Concussion; SAC)[6]

Immediate Memory

All 3 trials must be administered irrespective of the number correct on Trial 1. Administer at the rate of one word per second in a monotone voice.

Trial 1: Say *"I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order."*

Trials 2 and 3: Say *"I am going to repeat the same list. Repeat back as many words as you can remember in any order, even if you said the word before in a previous trial."*

Word list used: A ☐ B ☐ C ☐

List A	Trial 1	Trial 2	Trial 3	Alternate Lists: List B	List C
Finger	0 1	0 1	0 1	Baby	Jacket
Penny	0 1	0 1	0 1	Monkey	Arrow
Blanket	0 1	0 1	0 1	Perfume	Pepper
Lemon	0 1	0 1	0 1	Sunset	Cotton
Insect	0 1	0 1	0 1	Iron	Movie
Candle	0 1	0 1	0 1	Elbow	Dollar
Paper	0 1	0 1	0 1	Apple	Honey
Sugar	0 1	0 1	0 1	Carpet	Mirror
Sandwich	0 1	0 1	0 1	Saddle	Saddle
Wagon	0 1	0 1	0 1	Bubble	Anchor
Trial Total					

Time last trial completed:

Immediate Memory Score ____ of 30

Concentration

Digits Backward:

Administer at the rate of one digit per second in a monotone voice reading DOWN the selected column.

Say *"I'm going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7. So, if I said 9-6-8 you would say? (8-6-9)"*

Digit list used: A ☐ B ☐ C ☐

List A	List B	List C			
5-2	4-1	4-9	Y	N	0 1
4-1	9-4	6-2	Y	N	
4-9-3	5-2-6	1-4-2	Y	N	0 1
6-2-9	4-1-5	6-5-8	Y	N	
3-8-1-4	1-7-9-5	6-8-3-1	Y	N	0 1
3-2-7-9	4-9-6-8	3-4-8-1	Y	N	
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	N	0 1
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	N	
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	N	0 1
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	N	
			Digits Score		____ of 5

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Step 3: Cognitive Screening (Continued)

Days in Reverse Order:

Say ***"Now tell me the days of the week in reverse order as QUICKLY and as accurately as possible. Start with the last day and go backward. So, you'll say Sunday, Saturday… go ahead"***

Start stopwatch and CIRCLE each correct response:

Sunday Saturday Friday Thursday Wednesday Tuesday Monday

Time Taken to Complete (secs): **Number of Errors:**

1 point if no errors and completion under 30 seconds

Days Score: **of 1**

Concentration Score (Digits + Days)	of 6

Step 4: Coordination and Balance Examination

Modified Balance Error Scoring System (mBESS)[7] testing

(see detailed administration instructions)

Foot Tested: Left ☐ **Right** ☐ (i.e. test the **non-dominant** foot)

Testing Surface (hard floor, field, etc.):

Footwear (shoes, barefoot, braces, tape etc.):

OPTIONAL (depending on clinical presentation and setting resources): For further assessment, the same 3 stances can be performed on a surface of medium density foam (e.g., approximately 50cm x 40cm x 6cm) with the same instructions and scoring.

Modified BESS (20 seconds each)		On Foam (Optional)	
Double Leg Stance:	of 10	Double Leg Stance:	of 10
Tandem Stance:	of 10	Tandem Stance:	of 10
Single Leg Stance:	of 10	Single Leg Stance:	of 10
Total Errors:	of 30	Total Errors:	of 30

Note: If the mBESS yields negative or questionable findings then proceed to the **Tandem Gait/Complex/Dual-Task Tandem Gait**. If the mBESS reveals clinically significant difficulties, **Tandem Gait** is not necessary at this time. The **Tandem Gait**, **Complex Tandem Gait** and optional **Dual-Task** component may be administered later in the office setting as needed.

Timed Tandem Gait

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed.

Say ***"Please walk heel-to-toe quickly to the end of the tape, turn around and come back as fast as you can without separating your feet or stepping off the line."***

Single Task:

Time to Complete Tandem Gait Walking (seconds)				
Trial 1	Trial 2	Trial 3	Average 3 Trials	Fastest Trial

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Step 4: Coordination and Balance Examination (Continued)

Complex Tandem Gait

Forward

Say ***"Please walk heel-to-toe quickly five steps forward, then continue forward with eyes closed for five steps"***
1 point for each step off the line, 1 point for truncal sway.

Forward Eyes Open	**Points:**	
Forward Eyes Closed	**Points:**	
	Forward Total Points:	

Backward

Say ***"Please walk heel-to-toe again, backwards five steps eyes open, then continue backwards five steps with eyes closed."*** 1 point for each step off the line, 1 point for truncal sway.

Backward Eyes Open	**Points:**	
Backward Eyes Closed	**Points:**	
	Backward Total Points:	

Total Points (Forward + Backward):

Dual Task Gait (Optional)

Only perform if the child successfully completes complex tandem gait.

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed.

Say ***"Now, while you are walking heel-to-toe, I will ask you to count backwards out loud by 3s. For example, if we started at 100, you would say 100, 97, 94, 91. Let's practise counting. Starting with 95, count backward by threes until I say "stop"."*** Note that this practice only involves counting backwards.

Dual Task Practice: Circle correct responses; record number of subtraction counting errors.

Task									Errors	Time
Practice	95	92	89	86	83	80	77	74		

Say ***"Good. Now I will ask you to walk heel-to-toe and count backwards out loud at the same time. Are you ready? The number to start with is 88. Go!"***

Dual Task Cognitive Performance: Circle correct responses; record number of subtraction counting errors.

Task									Errors	Time (circle fastest)
Trial 1	88	85	82	79	76	73	70	67		
Trial 2	76	73	70	67	64	61	58	55		
Trial 3	93	90	87	84	81	78	75	72		

Alternate double number starting integers may be used and recorded below.

Starting Integer: **Errors:** **Time:**

Were any single- or dual-task, timed tandem gait trials not completed due to walking errors or other reasons?

Yes ☐ **No** ☐

If yes, please explain why:

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Step 5: Delayed Recall

The Delayed Recall should be performed after **at least 5 minutes** have elapsed since the end of the Immediate Memory section: **Score 1 point for each correct response.**

Say ***"Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order."***

Time started:

Word list used: A ☐ B ☐ C ☐

List A	Score	Alternate Lists: List B	Alternate Lists: List C
Finger	0 1	Baby	Jacket
Penny	0 1	Monkey	Arrow
Blanket	0 1	Perfume	Pepper
Lemon	0 1	Sunset	Cotton
Insect	0 1	Iron	Movie
Candle	0 1	Elbow	Dollar
Paper	0 1	Apple	Honey
Sugar	0 1	Carpet	Mirror
Sandwich	0 1	Saddle	Saddle
Wagon	0 1	Bubble	Anchor
Delayed Recall Score	of 10		

If the athlete was known to you prior to their injury, are they different from their usual self?

Yes ☐ **No** ☐ **Not applicable** ☐ (If different, describe why In the clinical notes section)

Step 6: Decision

Domain	Date:	Date:	Date:
Immediate Assessent/Neuro Screen	Normal/Abnormal	Normal/Abnormal	Normal/Abnormal
Symptom number (of 21) Child Report Parent Report			
Symptom Severity (of 63) Child Report Parent Report			
Immediate Memory (of 30)			
Concentration (of 6)			
Delayed Recall (of 10)			
Cognitive Total Score (of 46)			
mBESS Total Errors (of 30)			
Tandem Gait fastest time			
Complex Tandem Gait Total Points			
Dual Task fastest time			

Disposition

Concussion diagnosed? **Yes** ☐ **No** ☐ **Deferred** ☐

If re-testing, has the child improved? **Yes** ☐ **No** ☐

Describe:

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Health Care Professional Attestation

I am an HCP and I have personally administered or supervised the administration of this Child SCAT6.

Name:

Signature: **Title/Speciality:**

Registration/License number (if applicable): **Date:**

Additional Clinical Notes

Note: Scoring on the Child SCAT6 should not be used as a stand-alone method to diagnose concussion, measure recovery, or make decisions about a child's readiness to return to sport after concussion. Remember, a child can score within normal limits on the Child SCAT6 and still have a concussion. Wherever possible, the results of the Child SCAT6 should accompany the child to any later reassessments by an HCP.

Appendix 4

BJA Concussion & Strangulation Graduated Return to Play Infographic

JUDO CONCUSSION & STRANGULATION PROTOCOL 2025

BRITISH JUDO

CONCUSSION / STRANGULATION INJURY

IMMEDIATE REMOVAL FROM FIELD OF PLAY
Confirm suspicion of concussion with Maddox Questions, full trauma assessment for neck injury

ANY ADVERSE SIGNS?
Immediate HCP assessment or A&E

NO ADVERSE SIGNS?
Follow Judo RTP

Minimum Timings:

AGE	*Stage 1*	*Stage 2A*	*Time between staged 2B - 6*	*Total Minimum time to RTP*
Under 19	24-48 hrs	14 days	48 hrs	23-24 days
19 & over	24-48 hrs	14 days	24 hrs	19-20 days
19 & over *ENHANCED* *	24 hrs	24 hrs	24 hrs	7 days

**** WCPP athletes under direct medical supervision only***

If person gets return of symptoms at any time:

Under 19	Full rest for 48 hrs or until symptom free, then resume RTP at level below
19 & over	Full rest for 24 hrs or until symptom free, then resume RTP at level below

IF IN DOUBT, SIT THEM OUT

STAGE 1: INITIAL REST — HCP assessment, SCAT 6

STAGE 2A: RELATIVE REST

STAGE 2B: LIGHT AEROBIC EXERCISE — Must be symptom free to continue

STAGE 3: JUDO SPECIFIC EXCERCISE

STAGE 4: NON-CONTACT TECHNICAL TRAINING

STAGE 5: FULL-CONTACT TECHNICAL TRAINING

STAGE 6: RETURN TO PLAY — HCP assessment before progressing

STAGE	AIM	DETAILS / JUDO SPECIFIC ACTIVITY
1	INITIAL REST (MIND & BODY)	**24-48 hrs.** Complete physical & cognitive rest (no exercise, minimize screen time on electronics, time off work / study). Review by HCP & SCAT 6 assessment ASAP after injury (at earliest 10 mins after)
2A	RELATIVE REST	**14 days.** Return to normal daily activities that don't provoke symptoms. Must be symptom free at end of this stage before continuing
2B	LIGHT AEROBIC EXERCISE (Increased heart rate)	5 x 4mins on / 4 mins off session (total of 20 mins work in a 40 min session). Work to <70% maximum heart rate. Light bike / jogging / walk / swim. No resistance training
3	JUDO SPECIFIC EXERCISE (Add in Judo movements)	Total session time <45 mins, regular 3-4 min rest intervals to ensure no symptoms. Work to <80% maximum heart rate. No head impact. Banded Uchikomi (no Uke), ladder drills, Ashi-waza with cones
4	NON-CONTACT TECHNICAL TRAINING (Increase exercise, co-ordination & cognitive load)	Must return to work / education before returning to judo. S&C: Progressive loadings 50-75% & start resistance training. Total session time <60 mins, regular 3-4 min rest intervals to ensure no symptoms. Work to <90% maximum heart rate. No head impact. Stand grip fighting, Uchikomi with Uke. No Nagekomi, Ne-waza, Tachi-waza. Must have clearance from HCP / GP before progressing to next stage
5	FULL-CONTACT TECHNICAL TRAINING (Increase Judo confidence & assess functional skills)	S&C: progressive loadings 75% - normal pre-injury activity. Full unrestricted Uchikomi & Nagekomi, open play Ne-waza &Tachi-waza. Regular 3-4 min rest intervals to ensure no symptoms. Mush be supervised by Judo coach to assess if back to normal self
6	FULL-CONTACT TECHNICAL TRAINING (Increase Judo confidence & assess functional skills)	Return to open play Randori

Appendix 5

BJA Concussion & Strangulation advice sheet

Concussion and Strangulation Advice Sheet

(to be given to the responsible adult monitoring the athlete)

Athlete's name:

Date / time of injury:

Date / time of medical review:

Name of health care professional:

This athlete has received a head injury or strangulation injury. A medical assessment has been carried out and no sign of serious complication has been found at this stage. Recovery time is variable among individuals, and the athlete will need to be monitored for a further period by a responsible adult. Your medical team will provide guidance as to this timeframe.

If you notice any change in behaviour, vomiting, worsening headache, double vision or excessive drowsiness, please telephone your doctor or the nearest hospital accident & emergency department immediately.

Other important points:

Initial rest: Limit physical activity to routine daily activities (avoid exercise, training, sports) and limit activities such as school, work, and screen time to a level that does not worsen symptoms.

1) Avoid alcohol
2) Avoid prescription or non-prescription drugs without medical supervision. Specifically:
    a) Avoid sleeping tablets
    b) Do not use aspirin, anti-inflammatory medication or stronger pain medications such as narcotics
3) Do not drive until cleared by a healthcare professional.
4) Return to play/sport requires clearance by a healthcare professional.
5) Follow the BJA Judo Specific Graduated Return to Play protocol to allow you to recommence judo training & competition safely.

JUDO CONCUSSION & STRANGULATION PROTOCOL 2025

BRITISH JUDO

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IMMEDIATE REMOVAL FROM FIELD OF PLAY
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ANY ADVERSE SIGNS?
Immediate HCP assessment or A&E

NO ADVERSE SIGNS?
Follow Judo RTP

Minimum Timings:

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Under 19	24-48 hrs	14 days	48 hrs	23-24 days
19 & over	24-48 hrs	14 days	24 hrs	19-20 days
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STAGE	AIM	DETAILS / JUDO SPECIFIC ACTIVITY
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6	FULL-CONTACT TECHNICAL TRAINING (Increase Judo confidence & assess functional skills)	Return to open play Randori