SCOAT6™

Sport Concussion Office Assessment Tool

For Adults & Adolescents (13 years +)

What is the SCOAT6?*

The SCOAT6 is a tool for evaluating concussion in a controlled office environment by Health Care Professionals (HCP) typically from 72 hours (3 days) following a sport-related concussion.

The diagnosis of concussion is a clinical determination made by an HCP. The various components of the SCOAT6 may assist with the clinical assessment and help guide individualised management.

The SCOAT6 is used for evaluating athletes aged 13 years and older. For children aged 12 years or younger, please use the Child SCOAT6.

Brief verbal instructions for some components of the SCOAT6 are included. Detailed instructions for use of the SCOAT6 are provided in an accompanying document. Please read through these instructions carefully before using the SCOAT6.

Completion Guide

Blue: Complete only at first assessment | **Green: Recommended part of assessment** | **Orange: Optional part of assessment**

Athlete's Name:

Date of Birth: **Sex:** **Male** ☐ **Female** ☐ **Prefer Not To Say** ☐ **Other**

Sport:

Occupational or Educational Status:

Current or Highest Educational Level or Qualification Achieved:

Examiner: **Date of Examination:**

Referring Physician's Name:

Referring Physician's Contact Details:

* In reviewing studies informing the SCOAT6 and Child SCOAT6, the period defined for the included papers was 3–30 days. HCPs may choose to use the SCOAT6 beyond this timeframe but should be aware of the parameters of the review.

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Developed by: The Concussion in Sport Group (CISG)

Supported by:

International Olympic Committee

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Current Injury

Removal From Play: **Immediate** ☐ **Continued to play for** _____ **mins** ☐

Walked off ☐ **Assisted off** ☐ **Stretchered off** ☐

Date of Injury:

Description - include mechanism of injury, presentation, management since the time of injury and trajectory of care since injury:

Date Symptoms First Appeared: **Date Symptoms First Reported:**

History of Head Injuries

Date/Year	**Description** - include mechanism of injury, presentation, management since the time of injury and trajectory of care since injury	**Management** - including time off work, school or sport

History of Any Neurological, Psychological, Psychiatric or Learning Disorders

Diagnosis	Year Diagnosed	Management Including Medication
☐ Migraine		
☐ Chronic headache		
☐ Depression		
☐ Anxiety		
☐ Syncope		
☐ Epilepsy/seizures		
☐ Attention deficit hyper-activity disorder (ADHD)		
☐ Learning disorder/ dyslexia		
☐ Other_____		

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List All Current Medications - including over-the-counter, naturopathic and supplements

Item	Dose	Frequency	Reason Taken

Family History of Any Diagnosed Neurological, Psychological, Psychiatric, Cognitive or Developmental Disorders

Family Member	Diagnosis	Management Including Medication
	☐ Depression	
	☐ Anxiety	
	☐ Attention deficit hyper-activity disorder (ADHD)	
	☐ Learning disorder/ dyslexia	
	☐ Migraine	
	☐ Other _____	

Additional Notes:

Symptom Evaluation

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

0	1	2	3	4	5	6
None	Mild		Moderate		Severe	

Symptom	Date of Assessment				
	Pre-injury	Day injured (date) _____	Consult 1 _____	Consult 2 _____	Consult 3 _____
	Rating	Rating	Rating	Rating	Rating
Headaches					
Pressure in head					
Neck pain					
Nausea or vomiting					
Dizziness					
Blurred vision					
Balance problems					
Sensitivity to light					
Sensitivity to noise					
Feeling slowed down					
Feeling like "in a fog"					
Difficulty concentrating					
Difficulty remembering					
Fatigue or low energy					
Confusion					
Drowsiness					
More emotional					
Irritability					
Sadness					
Nervous or anxious					
Sleep disturbance					
Abnormal heart rate					
Excessive sweating					
Other _____					

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Symptom Evaluation (Continued)

Symptom	Date of Assessment				
	Pre-injury	Day injured (date) _____	Consult 1 _____	Consult 2 _____	Consult 3 _____
	Rating	Rating	Rating	Rating	Rating
Do symptoms worsen with physical activity?					
Do symptoms worsen with cognitive (thinking) activity?					
Symptom number					
Symptom severity score					
What percentage of normal do you feel?					

Verbal Cognitive Tests

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	Alternate Lists: 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 Total _____ **of 30**

Time last trial completed:

Verbal Cognitive Tests: Alternate 15-word lists

Alternate 15-word lists may be accessed by scanning or clicking the QR code.

Record the total below.

Total _____ of 45

Digits Backwards

Administer at the rate of one digit per second in a monotone voice 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): _____ (N <30 sec) **Number of Errors:** _____

Examination

Orthostatic Vital Signs

The first blood pressure and heart rate measurements are taken after the patient lies supine on the examination table for at least 2 minutes. The patient is then asked to stand up without support and with both feet firmly on the ground and the second measurements are taken after standing for 1 minute. Ask the patient if they experience any dizziness or light-headedness upon standing (initial orthostatic intolerance) or by one minute (orthostatic intolerance).

Orthostatic Vital Signs	Supine	Standing (after 1 minute)
Blood Pressure (mmHg)		
Heart Rate (bpm)		
Symptoms[1] • Dizziness or light-headedness • Fainting • Blurred or fading vision • Nausea • Fatigue • Lack of concentration	No ☐ Yes ☐ If yes: Description	No ☐ Yes ☐ If yes: Description
Results	☐ Normal ☐ Abnormal	

Test results are deemed clinically significant if they include at least one of the following AND symptoms:
(1) systolic BP drop of ≥ 20mmHg or (2) diastolic BP drop of ≥ 10mmHg (3) HR decreases (4) HR increases by > 30bpm

Cervical Spine Assessment

Cervical Spine Palpation	Signs and Symptoms
Muscle Spasm	☐ Normal ☐ Abnormal
Midline Tenderness	☐ Normal ☐ Abnormal
Paravertebral Tenderness	☐ Normal ☐ Abnormal

Cervical Active Range of Motion	Result
Flexion (50-70°)	☐ Normal ☐ Abnormal
Extension (60-85°)	☐ Normal ☐ Abnormal
Right Lateral Flexion (40-50°)	☐ Normal ☐ Abnormal
Left Lateral Flexion (40-50°)	☐ Normal ☐ Abnormal
Right Rotation (60-75°)	☐ Normal ☐ Abnormal
Left Rotation (60-75°)	☐ Normal ☐ Abnormal

Neurological Examination

Cranial Nerves

Normal ☐ Abnormal ☐ Not tested ☐

Notes:

Other Neurological Findings

Limb Tone:	Normal ☐	Abnormal ☐	Not tested ☐
Strength:	Normal ☐	Abnormal ☐	Not tested ☐
Deep Tendon Reflexes:	Normal ☐	Abnormal ☐	Not tested ☐
Sensation:	Normal ☐	Abnormal ☐	Not tested ☐
Cerebellar Function:	Normal ☐	Abnormal ☐	Not tested ☐

Comments:

Balance

Barefoot on a firm surface with or without foam mat.

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

Modified BESS

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

On Foam

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

Timed Tandem Gait

Place a 3-metre-long line on the floor/firm surface with athletic tape.

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."*

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

Abnormal/failed to complete ☐ Unstable/sway ☐ Fall/over-step ☐ Dizzy/nauseous ☐

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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 or holding onto an object for support.

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 or holding onto an object for support.

Backward Eyes Open	**Points:**	
Backward Eyes Closed	**Points:**	
	Backward Total Points:	
	Total Points (Forward + Backward):	

Dual Task Gait

Say ***"Now, while you are walking heel-to-toe, I will ask you to recite the following words in reverse order / count backwards out loud by 7s (for instance starting at 100, then 93, 86 etc,) / recite the months of the year in reverse order"***

(select one cognitive task). Allow for a verbal practice attempt of the cognitive task selected.

Cognitive Tasks								
Trial 1 (Words - spell backwards)	VISIT	ALERT	FENCE	BRAVE	MOUSE	DANCE	CRAWL	LEARN
OR Trial 2 (Subtract serial 7s)	95	88	81	74	67	60	53	46
OR Trial 3 (Months backwards)	December	November	October	September	August	July	June	May	April	March	February	January

Before attempting the dual task: ***"Good. Now I will ask you to walk heel-to-toe calling the answers out loud at the same time. Are you ready?"***

Number of Trials Attempted: **Number of Correct Trials:** **Average Time (s):**

Cognitive Accuracy Score (Number Correct / Number Attempted):

Comments:

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Modified Vestibular/Ocular-Motor Screening (mVOMS) for Concussion

For detailed instructions please see the Supplement.

mVOMS	Not Tested	Headache	Dizziness	Nausea	Fogginess	Comments
Baseline symptoms	**N/A**					
Smooth pursuits (2 horizontal and 2 vertical, 2 seconds to go full distance right-left and back; up-down and back)						
Saccades – Horizontal (10 times each direction)						
VOR – Horizontal (10 repetitions) (metronome set at 180 beats per minute – change direction at each beep, wait 10 secs to ask symptoms)						
VMS (x 5, 80º rotation side to side) (at 50 bpm, change direction each beep, wait 10 secs to ask symptoms)						

Anxiety Screen

Not Done ☐

Assign scores of 0, 1, 2, and 3 to the response categories, respectively, of **"not at all," "several days," "more than half the days,"** and **"nearly every day."**

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	**0**	**1**	**2**	**3**
2. Not being able to stop or control worrying	**0**	**1**	**2**	**3**
3. Worrying too much about different things	**0**	**1**	**2**	**3**
4. Trouble relaxing	**0**	**1**	**2**	**3**
5. Being so restless that it's hard to sit still	**0**	**1**	**2**	**3**
6. Becoming easily annoyed or irritable	**0**	**1**	**2**	**3**
7. Feeling afraid as if something awful might happen	**0**	**1**	**2**	**3**

Anxiety Screen Score: _____ **0–4: minimal anxiety** **5–9: mild anxiety** **10–14: moderate anxiety** **15–21: severe anxiety**

Depression Screen

Not Done ☐

The purpose is to screen for depression in a "first-step" approach. Patients who screen positive should be further evaluated with the PHQ-9 to determine whether they meet criteria for a depressive disorder.

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	**0**	**1**	**2**	**3**
2. Feeling down, depressed or hopeless	**0**	**1**	**2**	**3**

Depression Screen Score: _____ **(Ranges from 0-6, 3 being the cutpoint to screen for depression)**

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Sleep Screen

Not Done ☐

1. During the past week how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)	
5 to 6 hours	4
6 to 7 hours	3
7 to 8 hours	2
8 to 9 hours	1
More than 9 hours	0

2. How satisfied/dissatisfied were you with the quality of your sleep?	
Very dissatisfied	4
Somewhat dissatisfied	3
Somewhat satisfied	2
Satisfied	1
Very satisfied	0

3. During the recent past, how long has it usually taken you to fall asleep each night?	
Longer than 60 minutes	3
31-60 minutes	2
16-30 minutes	1
15 minutes or less	0

4. How often do you have trouble staying asleep?	
Five to seven times a week	3
Three of four times a week	2
Once or twice a week	1
Never	0

5. During the recent past, how often have you taken medicine to help you sleep? (prescribed or over-the-counter)	
Five to seven times a week	3
Three of four times a week	2
Once or twice a week	1
Never	0

Sleep Screen Score:

A higher sleep disorder score (SDS) indicates a greater likelihood of a clinical sleep disorder:
0-4 (Normal)
5-7 (Mild)
8-10 (Moderate)
11-17 (Severe)

Delayed Word Recall

Minimum of 5 minutes after immediate recall

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."*

Word list used: A ☐ B ☐ C ☐

List A	Score	List B	List C
		Alternate Lists	
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

Score: _____ of 10 **Record Actual Time (mins) Since Completing Immediate Recall:** _____

Computerised Cognitive Test Results (if used)

Not Done ☐

Test Battery Used: _____

Recent Baseline - if performed (Date): _____

Post-Injury Result (Rest): _____

Post-Injury Result (Post-Exercise Stress): _____

Graded Aerobic Exercise Test

Not Done ☐

Exclude contra-indications: cardiac condition, respiratory disease, significant vestibular symptoms, motor dysfunction, lower limb injuries, cervical spine injury.

Protocol Used: _____

Overall Assessment

Summary:

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Management and Follow-up Plan

Cervical or brain imaging (X-rays/CT/MRI) ☐

Imaging Requested:

Reason:

Findings:

Recommendations regarding return to:

Class:

Work:

Driving:

Sport:

(See revised graduated return-to-learn and return-to-sport guidelines)

Referral

Further assessment, intervention or management

Assessment by:	**Name:**
☐ **Athletic Trainer/Therapist**	
☐ **Exercise Physiologist**	
☐ **Neurologist**	
☐ **Neuropsychologist**	
☐ **Neurosurgeon**	
☐ **Opthalmologist**	
☐ **Optometrist**	
☐ **Paediatrician**	
☐ **Physiatrist/Rehab Phys**	
☐ **Physiotherapist**	
☐ **Psychologist**	
☐ **Psychiatrist**	
☐ **Sport and Exercise Medicine Phys**	
☐ **Other**	

Pharmacotherapy Prescribed:

Date of Review: **Date of Follow-up:**

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Additional Clinical Notes

Return-to-Learn (RTL) Strategy

Facilitating RTL is a vital part of the recovery process for student-athletes. HCPs should work with stakeholders on education and school policies to facilitate academic support, including accommodations/learning adjustments for students with SRC when needed. Academic support should address risk factors for greater RTL duration (e.g., social determinants of health, higher symptom burden) by adjusting environmental, physical, curricular, and testing factors as needed. **Not all athletes will need a RTL strategy or academic support**. If symptom exacerbation occurs during cognitive activity or screen time, or difficulties with reading, concentration, or memory or other aspects of learning are reported, clinicians should consider implementation of a RTL strategy at the time of diagnosis and during the recovery process. When the RTL strategy is implemented, it can begin following an initial period of relative rest (Step1: 24-48 hrs), with an incremental increase in cognitive load (Steps 2 to 4). Progression through the strategy is symptom limited (i.e., no more than a mild exacerbation of current symptoms related to the current concussion) and its course may vary across individuals based on tolerance and symptom resolution. Further, while the RTL and RTS strategies can occur in parallel, student-athletes should complete full RTL before unrestricted RTS.

Step	Mental Activity	Activity at Each Step	Goal
1	Daily activities that do not result in more than a mild exacerbation* of symptoms related to the current concussion.	Typical activities during the day (e.g., reading) while minimizing screen time. Start with 5–15 min at a time and increase gradually.	Gradual return to typical activities.
2	School activities.	Homework, reading, or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work.
3	Return to school part time.	Gradual introduction of schoolwork. May need to start with a partial school day or with greater access to rest breaks during the day.	Increase academic activities.
4	Return to school full time.	Gradually progress school activities until a full day can be tolerated without more than mild* symptom exacerbation.	Return to full academic activities and catch up on missed work.

NOTE: Following an initial period of relative rest (24-48 hours following injury at Step 1), athletes can begin a gradual and incremental increase in their cognitive load. Progression through the strategy for students should be slowed when there is more than a mild and brief symptom exacerbation.

*Mild and brief exacerbation of symptoms is defined as an increase of no more than 2 points on a 0-10 point scale (with 0 representing no symptoms and 10 the worst symptoms imaginable) for less than an hour when compared with the baseline value reported prior to cognitive activity.

Return-to-Sport (RTS) Strategy

Return to sport participation after an SRC follows a graduated stepwise strategy, an example of which is outlined in Table 2. RTS occurs in conjunction with return to learn (see RTL strategy) and under the supervision of a qualified HCP. Following an initial period of relative rest (Step 1: approximately 24-48 hours), clinicians can implement Step 2 [i.e., light (Step 2A) and then moderate (Step 2B) aerobic activity] of the RTS strategy as a treatment of acute concussion. The athlete may then advance to steps 3-6 on a time course dictated by symptoms, cognitive function, clinical findings, and clinical judgement. Differentiating early activity (step 1), aerobic exercise (Step 2), and individual sport-specific exercise (Step 3) as part of the treatment of SRC from the remainder of the RTS progression (Steps 4-6) can be useful for the athlete and their support network (e.g., parents, coaches, administrators, agents). Athletes may be moved into the later stages that involve risk of head impact (Steps 4-6 and Step 3 if there is any risk of head impact with sport-specific activity) of the RTS strategy following authorization by the HCP and after resolution of any new symptoms, abnormalities in cognitive function, and clinical findings related to the current concussion. Each step typically takes at least 24 hours. Clinicians and athletes can expect a minimum of 1 week to complete the full rehabilitation strategy, but typical unrestricted RTS can take up to one month post-SRC. The time frame for RTS may vary based on individual characteristics, necessitating an individualized approach to clinical management. Athletes having difficulty progressing through the RTS strategy or with symptoms and signs that are not progressively recovering beyond the first 2-4 weeks may benefit from rehabilitation and/or involvement of a multidisciplinary team of HCP experienced in managing SRC. Medical determination of readiness, including psychological readiness, to return to at-risk activities should occur prior to returning to any activities at risk of contact, collision or fall (e.g. multiplayer training drills), which may be required prior to any of steps 3-6, depending on the nature of the sport or activity that the athlete is returning to and in keeping with local laws/requirements.

Step	Exercise Strategy	Activity at Each Step	Goal
1	Symptom-limited activity.	Daily activities that do not exacerbate symptoms (e.g., walking).	Gradual reintroduction of work/school.
2	Aerobic exercise **2A – Light** (up to approx. 55% max HR) **then** **2B – Moderate** (up to approximately 70% max HR)	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation* of concussion symptoms.	Increase heart rate.
3	Individual sport-specific exercise **NOTE:** if sport-specific exercise involves any risk of head impact, medical determination of readiness should occur prior to step 3.	Sport-specific training away from the team environment (e.g., running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact.	Add movement, change of direction.
Steps 4-6 should begin after resolution of any symptoms, abnormalities in cognitive function, and any other clinical findings related to the current concussion, including with and after physical exertion.			
4	Non-contact training drills.	Exercise to high intensity including more challenging training drills (e.g., passing drills, multiplayer training). Can integrate into team environment.	Resume usual intensity of exercise, coordination, and increased thinking.
5	Full contact practice.	Participate in normal training activities.	Restore confidence and assess functional skills by coaching staff.
6	Return to sport.	Normal game play.	

maxHR = predicted maximal Heart Rate according to age (i.e., 220-age)

Age Predicted Maximal HR= 220-age	Mild Aerobic Exercise	Moderate Aerobic Exercise
55%	220-age x 0.55 = training target HR	
70%		220-age x 0.70 = training target HR

NOTE: *Mild and brief exacerbation of symptoms (i.e., an increase of no more than 2 points on a 0-10 point scale for less than an hour when compared with the baseline value reported prior to physical activity). Athletes may begin Step 1 (i.e., symptom-limited activity) within 24 hours of injury, with progression through each subsequent step typically taking a minimum of 24 hours. If more than mild exacerbation of symptoms (i.e., more than 2 points on a 0-10 scale) occurs during Steps 1 -3, the athlete should stop and attempt to exercise the next day. If an athlete experiences concussion-related symptoms during Steps 4-6, they should return to Step 3 to establish full resolution of symptoms with exertion before engaging in at-risk activities. Written determination of readiness to RTS should be provided by an HCP before unrestricted RTS as directed by local laws and/or sporting regulations.