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.

Completion Guide

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.

This tool may be freely copied in its current form for distribution to individuals, teams, groups, and organisations. Any alteration (including translations and digital reformatting), re-branding, or sale for commercial gain is not permissible without the expressed written consent of BMJ and the Concussion in Sport Group (CISG).

Blue: Complete on	ly at first assessment	Green: Recomme	ended part of asse	essment	Orange: Optional part of assessment		
Athlete's Name:							
Date of Birth:		Sex: Male	Female	Prefer Not	t To Say Other		
Sport:							
Occupational or	Educational Status:						
Current or Highe	est Educational Level or	r Qualification Ach	nieved:				
Examiner:			Date of E	Examination			
Referring Physic	ian's Name:						
Referring Physician's Contact Details:							
Referring Physic Referring Physic	ian's Name: ian'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.

For use by Health Care Professionals Only



Developed by: The Concussion in Sport Group (CISG)

Supported by:









oort Concussion Office Assessment Tool 6 - SCOAT6™							
SCOAT6	M Sport Concussion Office Assessment Tool For Adults & Adolescents (13 years +)						
Current Injury							
Removal From Play: Imm Wal	ediate Continued to play for mins ced off Assisted off Stretchered off						
Date of Injury: Description - include mechar	ism of injury, presentation, management since the time of injury and trajectory of care since injury:						
Date Symptoms First Appea	red: 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		

For use by Health Care Professionals only

List All Current Medications - including over-the-counter, naturopathic and supplements							
ltem	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 None	1 Mild	2 3 Moderate	4 5 Seve	6 re	
			D	ate of Assessme	nt	
Symptom		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						

Symptom Evaluation (Continued)								
Date of Assessment								
Pre-injury	Day injured (date)	Consult 1	Consult 2	Consult 3				
Rating	Rating	Rating	Rating	Rating				
	tinued) Pre-injury Rating	tinued) Pre-injury Day injured (date) Rating Rating	tinued) Date of Assessment Pre-injury Day injured (date) Consult 1 Rating Rating Rating	tinued) Date of Assessment Pre-injury Day injured (date) Consult 1 Consult 2 Rating Rating Rating Rating Image: Construct of the system of the sy				

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							Alternate Lists		
List A	Tria	al 1	Tria	al 2	Tria	al 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 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	ВСС					
List A	List B	List C				
4-9-3	5-2-6	1-4-2	Y	Ν	0	4
6-2-9	4-1-5	6-5-8	Y	Ν	U	1
3-8-1-4	1-7-9-5	6-8-3-1	Y	Ν	0	1
3-2-7-9	4-9-6-8	3-4-8-1	Y	Ν	Ū	
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	Ν	0	4
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	Ν	U	
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	Ν	0	4
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	Ν	U	
				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	Augus	t July	June	Мау	April	March	February	January
Time Taken 1	o Complete (secs):			(N <30 se	ec)	Num	ber of E	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	If yes: Description	If yes: Description		
Blurred or fading vision				
• Nausea				
Fatigue				
Lack of concentration				
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 \geq 20mmHg or (2) diastolic BP drop of \geq 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
Operational Applications of Matthew	Decut
Cervical Active Range of Motion	Result
Flexion (50-70°)	Normal Abnormal
Extension (60-85°)	Normal Abnormal
Extension (60-85°) Right Lateral Flexion (40-50°)	Normal Abnormal Normal Abnormal
Extension (60-85°) Right Lateral Flexion (40-50°) Left Lateral Flexion (40-50°)	Normal Abnormal Normal Abnormal Normal Abnormal
Extension (60-85°) Right Lateral Flexion (40-50°) Left Lateral Flexion (40-50°) Right Rotation (60-75°)	Normal Abnormal Normal Abnormal Normal Abnormal Normal Abnormal

port Concussion Office Assessment Tool 6 - SCOAT6™					
Neurological Exam	ination				
Cranial Nerves					
Normal	Abnormal	Not tested			
Notes:					
Other Neurologic	al 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 surfa	ace with or without foam mat.					
Foot Tested: Left	Right (i.e. test the non-dominant	foot)				
Modified BESS		On Foam				
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			

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 1 Trial 2 Trial 3 Average 3 Trials					
Abnormal/failed to com	olete Unstat	ble/sway Fa	II/over-step	Dizzy/nauseous		

For use by Health Care Professionals only

Sport Concussion Office Assessment Tool 6 - SCO	AT6™	
Complex Tandem Gait		
Forward		
Say "Please walk heel-to-toe quickly five ste each step off the line, 1 point for truncal sway of	ps forward, then continue forward with eyes clo holding onto an object for support.	sed for five steps" 1 point for
Forward Eyes Open Points:		
Forward Eyes Closed Points:		
Forward Total Points:		
Backward Say "Please walk heel-to-toe again, backwar closed." 1 point for each step off the line, 1 point	ds five steps eyes open, then continue backwar ht for truncal sway or holding onto an object for sup	ds five steps with eyes port.
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 O	october Septe	mber August	July June	May April I	March Februa	ry 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?"						at the same		
Number of Trials Atten	npted:		Number of C	orrect Trials:	:	Averaç	ge Time (s):	
Cognitive Accuracy So	ore (Numbe	r Correct / N	umber Attem	pted):				
Comments:								

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, 80° 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 o	0	1	2	3	
2. Not being able to stop or contr	0	1	2	3	
3. Worrying too much about diffe	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 ir	0	1	2	3	
7. Feeling afraid as if something awful might happen		0	1	2	3
Anxiety Screen Score:	0–4: minima 10–14: mod	Il anxiety erate anxiety	5–9: mild anxiety 15–21: severe an	xiety	

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 <u>PHQ-9</u> 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)

Sport Concussion Office Assessment Tool 6 - SCOAT6™



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		Alterna	nte Lists
List A	Score	List B	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

Score:

Record Actual Time (mins) Since Completing Immediate Recall:

Computerised Cognitive Test Results (if used)

of 10

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:

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 re	<u>turn-to-sport</u> guidelines)		
Referral			
Further assessment, intervention or manager	nent		
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:		

-[+]-

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. For use by Health Care Professionals only

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.