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

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Developed by: The Concussion in Sport Group (CISG)

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

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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)**

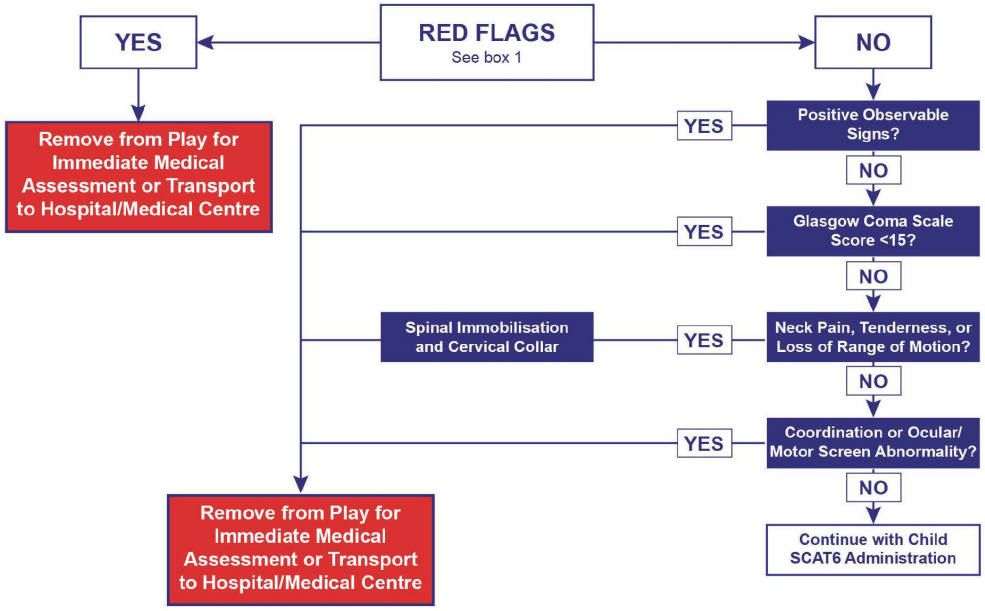
Immediate Assessment/Neuro Screen (Not Required at Baseline)

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

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:

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.