Child SCAT6

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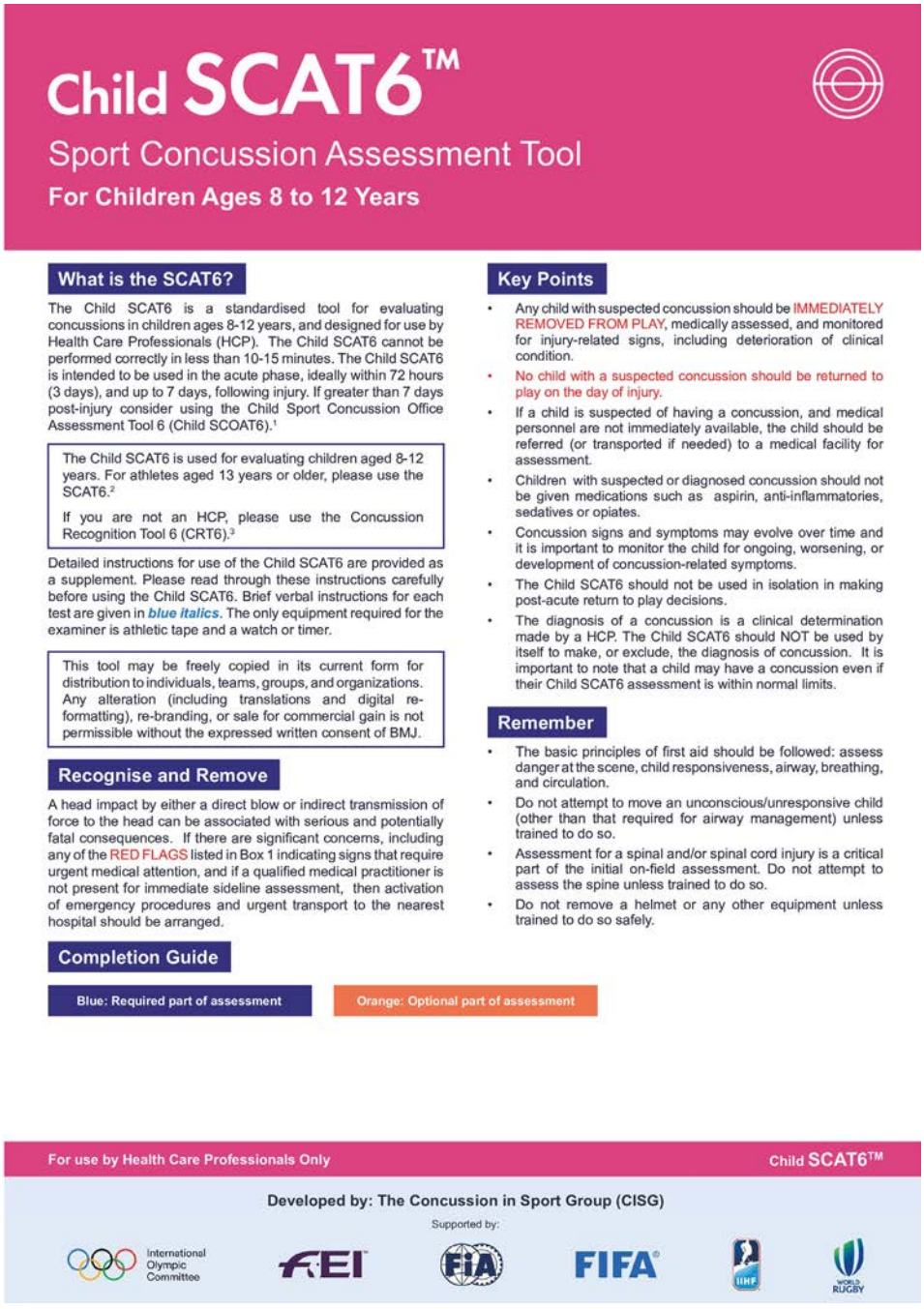

Child SCAT6™

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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Child SCAT6™

Developed by: The Concussion in Sport Group (CISG)

Supported by:

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Child Sport Concussion Assessment Tool 6 - Child SCAT6™

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)

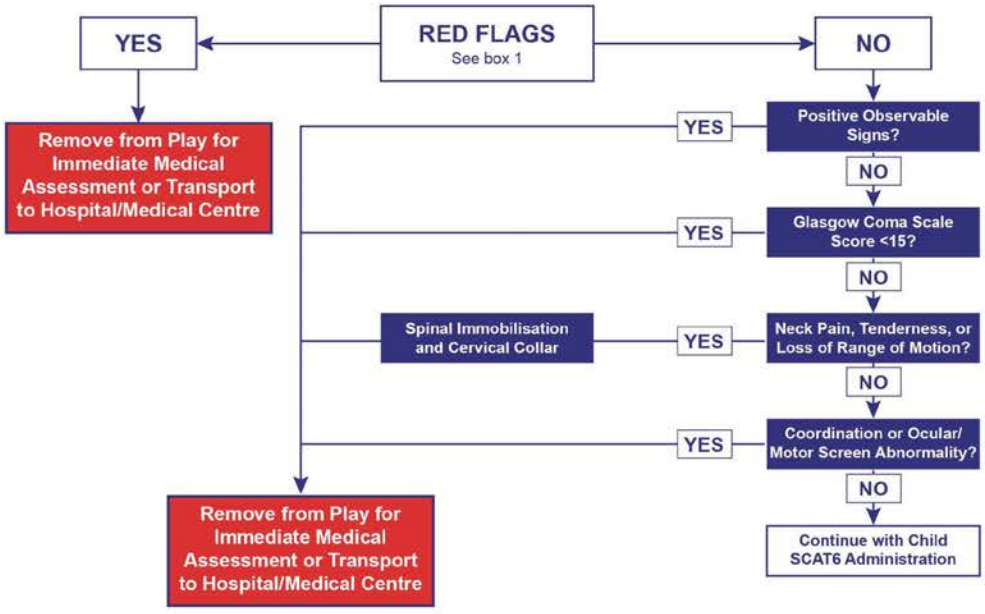
Immediate Assessment/Neuro Screen (Not Required at Baseline)

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 10 Very Good

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	Alternate Lists: 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.

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Contributors GAD served as the primary author and responsible for all aspects of the project, including initial preparation, coordination, review, editing and final preparation of the Child SCAT6 tool. RJE served as the primary author of the systematic review and development of the SCAT6 manuscript and tool. All co-authors contributed to the development and critical review of the Child SCAT6 tool, and approved the final version of the tool.

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Competing interests GAD is a member of the Scientific Committee of the 6th International Consensus Conference on Concussion in Sport; an honorary member of the AFL Concussion Scientific Committee; Section Editor, Sport and Rehabilitation, NEUROSURGERY; and has attended meetings organised by sporting organisations including the NFL, NRL, IIHF, IOC and FIFA; however has not received any payment, research funding or other monies from these groups other than for travel costs. Dr RJE is a paid consultant for the NHL and cochair of the NHL/ NHLPA Concussion Subcommittee. He is also a paid consultant and chair of the Major League Soccer concussion committee and a consultant to the US Soccer Federation. He previously served as a neuropsychology consultant to Princeton University Athletic Medicine and EyeGuide. He is currently a co-PI for a grant funded by the NFL (NFL-Long) through Boston Children's Hospital. He occasionally provides expert testimony in matters related to MTBI and sports concussion,and occasionally receives honoraria and travel support/reimbursement for professional meetings. Dr OHA is a Senior Physiotherapist at University Hospitals Dorset NHS Foundation Trust (England) and is Para Football Physiotherapy Lead/Para Football Classification Lead at the Football Association (England). He also works on a consultancy basis with the Football Association as the squad physiotherapist to the England Cerebral Palsy Football squad and teaches on the Football Association's Advanced Trauma and Medical Management in Football course on a consultancy basis. He has a Visiting Senior Lecturer position at the University of Portsmouth, England (unpaid). He sits on several disability sport committees including Para Football Foundation as Medical Unit Co-Lead (unpaid), the International Federation of Cerebral Palsy Football as Medical and Sports Science Director (unpaid) and the International Blind Sports Association as Medical Committee member (unpaid). He has Associate Editor positionsat the British Journal of Sports Medicine (unpaid) and BMJ Open Sports Centers for Disease Control and Prevention; Department of Defense - USA Medical Research Acquisition Activity, National Collegiate Athletic Association; National Athletic Trainers'Association Foundation; National Football League/Under Armour/GE; Simbex; and ElmindA. He has consulted for US Soccer (paid), US Cycling (unpaid), University of Calgary SH Red Concussions external advisory board (unpaid), medico-legal litigation, and received speaker honorarium and travel reimbursements (including CISG) for talks given. He is co-author of "Biomechanics of Injury (3rd edition)" and has a patent pending on "Brain Metabolism Monitoring Through CCO Measurements Using All-Fiber-Integrated Super-Continuum Source"(US Application No. 17/164,490). He is on the and is/was on the editorial boards (all unpaid) for Journal of Athletic Training (2015 to present), Concussion (2014 to present), Athletic Training NIH NINDS (R01 NS110757 2019-2024); NINDS (U54 NS121688 2021-2026); UCLA Brain Injury Research Center, UCLA Steve Tisch Brain SPORTprogram, Easton Clinic for Brain Health Clinical Consultant (provide clinical care to athletes): NBA, NFL-Neurological Care Program, NHL/NHLPA, Los Angeles Lakers Advisory Board (Non compensated): Major League Soccer, National Basketball Association, US Soccer Federation. Advisory Board (Compensated): Highmark Interactive Medicolegal: One or two cases annually Speaker's Bureau: None. Stock Shareholder: Highmark Interactive stock options (2018).Other Financial or Material Support: Book royalties – Blackwell/Wiley Publishing: Prioritized Neurological Differential Diagnosis Other: None. Dr KMG has received grant funding from NFL for the NFL LONG study. He also serves on the NCAA Scientific Advisory Board in an unpaid capacity. Dr Kim Harmon Research Development Director, Pac-12 Conference Member, Pac-12 Brain Trauma Task Force Member, NFL Head Neck and Spine Committee Deputy Editor, British Journal of Sports Medicine Head Football Physician, University of Washington. Dr Stanley A Herring Co-founder and senior advisor, The Sports Institute at UW Medicine (unpaid) Centers for Disease Control and Prevention and National Center for Injury Prevention and Control Board Pediatric Mild Traumatic Brain Injury Guideline Workgroup (unpaid) CISG (travel support) NCAA Concussion Safety Advisory Group (unpaid) Team Physician, Seattle Mariners Former Team Physician, Seattle Seahawks occasional payment for expert testimony travel support for professional meetings. Dr MM Sport and exercise medicine physician working in private consulting practice. Shareholder of Olympic Park Sports Medicine Centre in Melbourne. Ex-senior physician at the Hawthorn Football Club (AFL) Ex-Chief Executive Officer of the AFL Doctors Association. Research grants received from the Australian Football League, outside the submitted work.Travel support received from the Australian Football League, FIFA and the International Olympic Committee to attend and present at international conferences. Member of the Scientific Committee for the 6th International Consensus Conference on Concussion in Sport. Honorary member of the International Concussion in Sport Group. Honorary member of the Australian Rugby Union Concussion Advisory Group. Independent Concussion Consultant for World Rugby. Dr CLM reports no financial COI Volunteer positions: Concussion team physician, Shipley School Board of Trustees, American College of Sports Medicine Board of Directors, American Medical Society for Sports Medicine Board of Directors, Pediatric Research in Sports Medicine Executive Committee, Council on Sports Medicine and Fitness, American Academy of Pediatrics Advisory Board, Untold Foundation, Pink Concussions, Headway Foundation Editorial Board, Journal of Adolescent Health, Frontiers in Neuroergonomics, Exercise, Sport, and Movement. Dr MMC has received research funding to the Medical College of Wisconsin from the National Institutes of Health, Department of Veterans Affairs, Centers for Disease Control and Prevention, Department of Defense, National Collegiate Athletic Association, National Football League and Abbott Laboratories. He receives book royalties from Oxford University Press. He serves as clinical consultant to Milwaukee Bucks, Milwaukee Brewers and Green Bay Packers and is Co-Director of the NFL Neuropsychology Consultants without compensation. He serves as consultant for Neurotrauma Sciences, Inc. He receives travel support and speaker honorariums for professional activities. Dr

TVML is a paid member of the NFL Head, Neck and Spine Committee and an unpaid member of the USA Swimming Concussion Task Force. WPM - I receive royalties from ABC-Clio publishing for the sale of the books, Kids, Sports and Concussion: A guide for coaches and parents and Concussions; from Springer International for the book Head and Neck Injuries in Young Athlete; and from Wolters Kluwer for working as an author for UpToDate. My research is funded, in part, by philanthropic support from the National Hockey League Alumni Association through the Corey C Griffin Pro-Am Tournament and a grant from a grant from the National Football League. Dr DN - CMO, Canadian Football League (CFL) Medical Director, Edmonton Oilers Hockey Club, National Hockey League Medial Director, Edmonton Elks Football Club, CFL Dr JSP: Editor BJSM (honorarium), Member of World Rugby Concussion Advisory Group (unpaid), Independent Concussion Consultant for World Rugby (fee per consultation), Medical consultant to South African Rugby (unpaid), Co-chair of the Scientific Committee, 6th International Conference on Concussion in Sport (unpaid), Board member of the Concussion in Sport Group (unpaid), Scientific Board member, EyeGuideTM (unpaid) Dr. LP CASEM Board Member, President-Elect 2022-2023NIH R34 Grant for EPICC Study (Eye Problems In Concussed Children), Site PI Speaker at various conferences. Dr MP declares the following: Consultant, CMO, Major League Soccer, Senior Advisor, NFL Head, Neck NCAA-CARE-DoD 2.0, ended 2020. Have received honoraria and reimbursement for travel for speaking and conferences attended. Have written chapters for UpToDate and received royalties for the Netter's Sports Medicine textbook. Have provided work as an expert for cases involving concussion, team physician and other sports medicine topics. KJS has received grant funding from the Canadian Institutes of Health Research (CIHR), NFL Scientific Advisory Board, International Olympic Committee Medical and Scientific Research Fund, World Rugby, Mitacs Accelerate, University of Calgary, with funds paid to her institution and not to her personally. She is an Associate Editor of BJSM (unpaid), Independent consultant to World Rugby and has received travel and accommodation support for meetings where she has presented. She coordinated the writing of the systematic reviews that informed Amsterdam International Consensus on Concussion in Sport, for which she has received an educational grant to assist with the administrative costs associated with the writing of the reviews (with funds paid to her institution). She is a member of the AFL Concussion Scientific Committee (unpaid position), Brain Canada (unpaid positions) and Board member of the Concussion in Sport Group (CISG) (unpaid). She works as a physiotherapy consultant and treats athletes of all levels of sport from grass roots to professional. Dr SRW reports receipt of honorarium from the National Athletic Trainers' Association (NATA) for presentation and travel to the 2022 World Congress of the World Federation of Athletic Training and Therapy (WFATT). Dr Walton serves as the Chair of Marketing and Promotions for the WFATT and as a member of the Outcomes working group for the International Initiative for Traumatic Brain Injury Research (InTBIR). Dr Walton reports work on research projects funded by the National Football League (NFL), National Collegiate Athletic Association (NCAA), Department of Defense (DoD) and Department of Veterans Affairs in the United States, and these entities do not oversee or provide input on his research or service efforts. Dr KOY: is Editor-in-Chief of the journal Neuropsychology and receive an editorial stipend from the American Psychological Association. I am an unpaid consulting editor for the journals Archives of Clinical Neuropsychology and Journal of Head Trauma Rehabilitation. I am an unpaid member of the Scientific Advisory Committee for Brain Injury Canada. I am the chair of the Canadian Concussion Network, which is funded by a grant from Canadian Institutes of Health Research (CIHR) to my institution; I am principal applicant on the grant but receive no income from it. I am a principal investigator on another grant from CIHR from which I derive no income. I am a co-investigator on research grants from CIHR, the US National Institutes ofHealth (NIH), Brain Canada Foundation, and National Football League Scientific Advisory Board; I derive income only from the grant from NIH. I serve as a member of a CIHR grant review panel for which I receive a small honorarium. I receive book royalties from Guilford Press and Cambridge University Press. I have received travel support and honorarium for presentations to multiple organisations. I served or serve on the following committees/boards for which I receive(d) honorarium: 1. Independent Data Monitoring Committee (IDMC), Care for Post-Concussive Symptoms E eciveness (CARE4PCS-2) Trial, National Institute for Child Health and Human Development 2. Observational Study Monitoring Board (OSMB), Approaches and Decisions in Acute Pediatric TBI (ADAPT) Trial, National Institute of Neurological Disorders and Stroke National Research Advisory Council, National Pediatric Rehabilitation Resource Center, Center for Pediatric Rehabilitation: Growing Research, Education and Sharing Science (C-PROGRESS),Virginia Tech University. Dr RZ has current or past competitively-funded research grants from Canadian Institutes of Health Research (CIHR), National Institutes of Health (NIH), Health Canada, Ontario Neurotrauma Foundation (ONF), Ontario Ministry of Health, Physician Services Incorporated (PSI) Foundation, CHEO Foundation, University of Ottawa Brain and Mind Research Institute,Ontario Brain Institute (OBI), and Ontario SPOR Support Unit (OSSU) and the National FootballLeague (NFL) Scientific Advisory Board. I hold Clinical Research Chair in Pediatric Concussion from University of Ottawa, and I am on the advisory board for Parachute Canada (a non-profitinjury prevention charity) and the board of directors for the North American Brain Injury Society (unpaid). I am the co-founder, Scientific Director and a minority shareholder in 360 Concussion Care, an interdisciplinary concussion clinic.

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