

# Child-SCAT3™



## Sport Concussion Assessment Tool for children ages 5 to 12 years

For use by medical professionals only

### What is childSCAT3?¹

The ChildSCAT3 is a standardized tool for evaluating injured children for concussion and can be used in children aged from 5 to 12 years. It supersedes the original SCAT and the SCAT2 published in 2005 and 2009, respectively². For older persons, ages 13 years and over, please use the SCAT3. The ChildSCAT3 is designed for use by medical professionals. If you are not qualified, please use the Sport Concussion Recognition Tool³. Preseason baseline testing with the ChildSCAT3 can be helpful for interpreting post-injury test scores.

Specific instructions for use of the ChildSCAT3 are provided on page 3. If you are not familiar with the ChildSCAT3, please read through these instructions carefully. This tool may be freely copied in its current form for distribution to individuals, teams, groups and organizations. Any revision and any reproduction in a digital form require approval by the Concussion in Sport Group.

**NOTE:** The diagnosis of a concussion is a clinical judgment, ideally made by a medical professional. The ChildSCAT3 should not be used solely to make, or exclude, the diagnosis of concussion in the absence of clinical judgement. An athlete may have a concussion even if their ChildSCAT3 is "normal".

### What is a concussion?

A concussion is a disturbance in brain function caused by a direct or indirect force to the head. It results in a variety of non-specific signs and/or symptoms (like those listed below) and most often does not involve loss of consciousness. Concussion should be suspected in the presence of any one or more of the following:

- Symptoms (e.g., headache), or
- Physical signs (e.g., unsteadiness), or
- Impaired brain function (e.g. confusion) or
- Abnormal behaviour (e.g., change in personality).

## SIDELINE ASSESSMENT

### Indications for Emergency Management

**NOTE:** A hit to the head can sometimes be associated with a more severe brain injury. If the concussed child displays any of the following, then do not proceed with the ChildSCAT3; instead activate emergency procedures and urgent transportation to the nearest hospital:

- Glasgow Coma score less than 15
- Deteriorating mental status
- Potential spinal injury
- Progressive, worsening symptoms or new neurologic signs
- Persistent vomiting
- Evidence of skull fracture
- Post traumatic seizures
- Coagulopathy
- History of Neurosurgery (eg Shunt)
- Multiple injuries

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### Glasgow coma scale (GCS)

#### Best eye response (E)

No eye opening	1
Eye opening in response to pain	2
Eye opening to speech	3
Eyes opening spontaneously	4

#### Best verbal response (V)

No verbal response	1
Incomprehensible sounds	2
Inappropriate words	3
Confused	4
Oriented	5

#### Best motor response (M)

No motor response	1
Extension to pain	2
Abnormal flexion to pain	3
Flexion/Withdrawal to pain	4
Localizes to pain	5
Obeys commands	6

**Glasgow Coma score (E + V + M)** of 15

GCS should be recorded for all athletes in case of subsequent deterioration.

### Potential signs of concussion?

If any of the following signs are observed after a direct or indirect blow to the head, the child should stop participation, be evaluated by a medical professional and **should not be permitted to return to sport the same day** if a concussion is suspected.

- Any loss of consciousness?  Y  N
- "If so, how long?" \_\_\_\_\_
- Balance or motor incoordination (stumbles, slow/laboured movements, etc.)?  Y  N
- Disorientation or confusion (inability to respond appropriately to questions)?  Y  N
- Loss of memory:  Y  N
- "If so, how long?" \_\_\_\_\_
- "Before or after the injury?" \_\_\_\_\_
- Blank or vacant look:  Y  N
- Visible facial injury in combination with any of the above:  Y  N

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### Sideline Assessment – child-Maddocks Score³

"I am going to ask you a few questions, please listen carefully and give your best effort."

Modified Maddocks questions (1 point for each correct answer)

Where are we at now?	0	1
Is it before or after lunch?	0	1
What did you have last lesson/class?	0	1
What is your teacher's name?	0	1
<b>child-Maddocks score</b>	<b>of 4</b>	

Child-Maddocks score is for sideline diagnosis of concussion only and is not used for serial testing.

**Any child with a suspected concussion should be REMOVED FROM PLAY, medically assessed and monitored for deterioration (i.e., should not be left alone). No child diagnosed with concussion should be returned to sports participation on the day of injury.**

## BACKGROUND

Name: \_\_\_\_\_ Date/Time of Injury: \_\_\_\_\_  
 Examiner: \_\_\_\_\_ Date of Assessment: \_\_\_\_\_  
 Sport/team/school: \_\_\_\_\_  
 Age: \_\_\_\_\_ Gender:  M  F  
 Current school year/grade: \_\_\_\_\_  
 Dominant hand:  right  left  neither  
 Mechanism of Injury ("tell me what happened?"): \_\_\_\_\_

#### For Parent / carer to complete:

- How many concussions has the child had in the past? \_\_\_\_\_
- When was the most recent concussion? \_\_\_\_\_
- How long was the recovery from the most recent concussion? \_\_\_\_\_
- Has the child ever been hospitalized or had medical imaging done (CT or MRI) for a head injury?  Y  N
- Has the child ever been diagnosed with headaches or migraines?  Y  N
- Does the child have a learning disability, dyslexia, ADD/ADHD, seizure disorder?  Y  N
- Has the child ever been diagnosed with depression, anxiety or other psychiatric disorder?  Y  N
- Has anyone in the family ever been diagnosed with any of these problems?  Y  N
- Is the child on any medications? If yes, please list:  Y  N

## SYMPTOM EVALUATION

### 3 Child report

Name: _____	never	rarely	sometimes	often
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
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

**Total number of symptoms** (Maximum possible 20)

**Symptom severity score** (Maximum possible 20 x 3 = 60)

self rated     clinician interview     self rated and clinician monitored

### 4 Parent report

The child	never	rarely	sometimes	often
has trouble sustaining attention	0	1	2	3
is easily distracted	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 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

**Total number of symptoms** (Maximum possible 20)

**Symptom severity score** (Maximum possible 20 x 3 = 60)

Do the symptoms get worse with physical activity?  Y  N

Do the symptoms get worse with mental activity?  Y  N

parent self rated     clinician interview     parent self rated and clinician monitored

**Overall rating** for parent/teacher/coach/carer to answer.  
How different is the child acting compared to his/her usual self?  
Please select one response:

no different     very different     unsure     N/A

Name of person completing Parent-report: \_\_\_\_\_

Relationship to child of person completing Parent-report: \_\_\_\_\_

**Scoring on the ChildSCAT3 should not be used as a stand-alone method to diagnose concussion, measure recovery or make decisions about an athlete's readiness to return to competition after concussion.**

## COGNITIVE & PHYSICAL EVALUATION

### 5 Cognitive assessment

#### Standardized Assessment of Concussion – Child Version (SAC-C)<sup>4</sup>

**Orientation** (1 point for each correct answer)

What month is it?	0	1
What is the date today?	0	1
What is the day of the week?	0	1
What year is it?	0	1

**Orientation score**  of 4

**Immediate memory**

List	Trial 1	Trial 2	Trial 3	Alternative word list
elbow	0 1	0 1	0 1	candle baby finger
apple	0 1	0 1	0 1	paper monkey penny
carpet	0 1	0 1	0 1	sugar perfume blanket
saddle	0 1	0 1	0 1	sandwich sunset lemon
bubble	0 1	0 1	0 1	wagon iron insect
<b>Total</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

**Immediate memory score total**  of 15

**Concentration: Digits Backward**

List	Trial 1	Alternative digit list
6-2	0 1	5-2 4-1 4-9
4-9-3	0 1	6-2-9 5-2-6 4-1-5
3-8-1-4	0 1	3-2-7-9 1-7-9-5 4-9-6-8
6-2-9-7-1	0 1	1-5-2-8-6 3-8-5-2-7 6-1-8-4-3
7-1-8-4-6-2	0 1	5-3-9-1-4-8 8-3-1-9-6-4 7-2-4-8-5-6
<b>Total of 5</b>	<input type="text"/>	

**Concentration: Days in Reverse Order** (1 pt. for entire sequence correct)

Sunday-Saturday-Friday-Thursday-Wednesday-Tuesday-Monday	0	1
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**Concentration score**  of 6

### 6 Neck Examination:

Range of motion    Tenderness    Upper and lower limb sensation & strength

**Findings:** \_\_\_\_\_

### 7 Balance examination

Do one or both of the following tests.  
Footwear (shoes, barefoot, braces, tape, etc.) \_\_\_\_\_

**Modified Balance Error Scoring System (BESS) testing<sup>5</sup>**  
Which foot was tested (i.e. which is the non-dominant foot)  Left  Right  
Testing surface (hard floor, field, etc.) \_\_\_\_\_

**Condition**

Double leg stance:  Errors

Tandem stance (non-dominant foot at back):  Errors

**Tandem gait<sup>6,7</sup>**  
Time taken to complete (best of 4 trials): \_\_\_\_\_ seconds  
If child attempted, but unable to complete tandem gait, mark here

### 8 Coordination examination

**Upper limb coordination**

Which arm was tested:  Left  Right

**Coordination score**  of 1

### 9 SAC Delayed Recall<sup>4</sup>

**Delayed recall score**  of 5

**Since signs and symptoms may evolve over time, it is important to consider repeat evaluation in the acute assessment of concussion.**