

NHCS Modified Sport Concussion Assessment Tool 2 (SCAT2) for on-field assessment

Name _____

Sport/team _____

Date/time of injury _____

Date/time of assessment _____

Age _____ Gender M F

History/MOI _____

TESTING RESULTS & SCORES

Test domain	Score
Symptom score	of 22
Physical signs score	of 2
Glasgow Coma score (e + V + M)	of 15
Balance examination score	of 30
Coordination score	of 1
Subtotal	of 70
Orientation score	of 5
Immediate memory score	of 15
Concentration score	of 5
Delayed recall score	of 5
SAC subtotal	of 30
SCAT2 total	of 100
Cranial Nerves	of 12
Maddocks Score	of 5
Symptom Severity Score	of 132

Sideline Assessment – Maddocks Score

Modified Maddocks questions (1 point for each correct answer)

At what venue are we at today?	0	1
Which half is it now?	0	1
Who scored last in this match?	0	1
What team did you play last week/game?	0	1
Did your team win the last game?	0	1

Maddocks score of 5

Maddocks score is validated for sideline diagnosis of concussion only and is not included in SCAT 2 summary score for serial testing.

Glasgow Coma Scale (GCS)

Eye Response: no eye opening (1); open in response to pain (2); open to speech (3); open spontaneously (4)

Verbal Response: no verbal response (1); incomprehensible sounds (2); inappropriate words (3); confused (4); oriented (5)

Motor Response: no motor response (1); extension to pain (2); abnormal flexion to pain (3); flexion/ withdrawal to pain (4); localizes pain (5); obeys commands (6)

GCS Score (E+V+M) _____

Symptom Evaluation

How do you feel?

You should score yourself on the following symptoms, based on how you feel now.

	none	mild	moderate	severe			
Headache	0	1	2	3	4	5	6
“Pressure in head”	0	1	2	3	4	5	6
neck Pain	0	1	2	3	4	5	6
nausea or vomiting	0	1	2	3	4	5	6
Dizziness	0	1	2	3	4	5	6
Blurred vision	0	1	2	3	4	5	6
Balance problems	0	1	2	3	4	5	6
Sensitivity to light	0	1	2	3	4	5	6
Sensitivity to noise	0	1	2	3	4	5	6
Feeling slowed down	0	1	2	3	4	5	6
Feeling like “in a fog”	0	1	2	3	4	5	6
“Don’t feel right”	0	1	2	3	4	5	6
Difficulty concentrating	0	1	2	3	4	5	6
Difficulty remembering	0	1	2	3	4	5	6
Fatigue or low energy	0	1	2	3	4	5	6
Confusion	0	1	2	3	4	5	6
Drowsiness	0	1	2	3	4	5	6
Trouble falling asleep (if applicable)	0	1	2	3	4	5	6
More emotional	0	1	2	3	4	5	6
Irritability	0	1	2	3	4	5	6
Sadness	0	1	2	3	4	5	6
nervous or Anxious	0	1	2	3	4	5	6

Symptom score Total number of symptom (Max possible 22)

22 minus number of symptoms of 22

Symptom severity Score

(Add all scores in table, maximum possible: 22 x 6 = 132)

Do the symptoms get worse with physical activity?	Y	N
Do the symptoms get worse with mental activity?	Y	N

Overall rating

If you know the athlete well prior to the injury, how different is the athlete acting compared to his / her usual self? Please circle one response.

no different very different unsure

Physical signs score

Was there loss of consciousness or unresponsiveness? If yes, how long? _____ minutes	Y	N
Was there a balance problem/unsteadiness?	Y	N

Physical signs score (1 point per negative response) _____

Balance examination

Balance testing

3 tests. 20 seconds each. Hands on hips & eyes closed. Count the number of times moved out of position during each test. Open eyes and return to start position before restarting time.

(a) Double leg stance:

Stand with your feet together & hands on hips.

(b) Single leg stance:

Stand on your non-dominant foot. The dominant leg should be held in approximately 30 degrees of hip flexion and 45 degrees of knee flexion.

(c) Tandem stance:

Now stand heel-to-toe with your non-dominant foot in back. Your weight should be evenly distributed across both feet

Balance Testing errors: 1. Hands lifted off iliac crest; 2. Opening eyes; 3. Step, Stumble, or fall; 4. Moving hip into >30 deg. abduction; 5. Lifting forefoot or heel; 6. Remaining out of test position > 5 sec.

One point for each error during test. Max error count/test = 10. Multiple errors occurring at once, count as point. Must maintain test for 5 seconds from start or Max score of 10 is given.

Which foot was tested:	left	right	
	(i.e. which is the non-dominant foot)		
Condition			Total errors
Double leg Stance (feet together)			of 10
Single leg stance (non-dominant foot)			of 10
Tandem stance (non-dominant foot at back)			of 10
Balance examination score (30 minus total errors)			

Coordination examination

Upper limb coordination

Finger-to-nose task: Sit in chair, eyes open, arm (R or L) extended (to 90 deg.), elbow & fingers extended. Perform five finger-to-nose reps using index finger to touch tip of nose.

Which arm was tested?: Left Right

Scoring: 5 correct repetitions in < 4 seconds = 1

*Athletes fail the test if they do not touch their nose, do not fully extend their elbow or do not perform five repetitions. Failure should be scored as 0.

Coordination score

Cranial Nerve Examination

I Olfactory	smell: balm/ammonia
II Optic	vision; read scoreboard
III Oculomotor	eyelid and eyeball movement; eye refraction
IV Trochlear	eye downward and laterally; oblique diagonals
V Trigeminal	chewing: bite down; scalp sensory
VI Abducens	turns eye laterally
VII Facial	most facial expressions: smile; secretion of tears & saliva; taste
VIII Vestibulocochlear (auditory)	hearing: finger snap; equilibrium sensation
IX Glossopharyngeal	swallowing; gag reflex; carotid blood pressure
X Vagus	motor speech: speak; swallowing; slows heart rate; breathing rate
XI Spinal Accessory	trapezius & sternocleidomastoid: shrug shoulders
XII Hypoglossal	tongue movements: stick out tongue

Cranial Nerve score of 12

Cognitive assessment

Standardized Assessment of Concussion (SAC)

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
What time is it right now? (within 1 hour)	0	1

Orientation score of 5

Immediate memory

"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 & 3:

"I am going to repeat the same list again. Repeat back as many words as you can remember in any order, even if you said the word before."

Complete all 3 trials regardless of score on trial 1 & 2. read the words at a rate of one per second. Score 1 pt. for each correct response. Total score equals sum across all 3 trials. Do not inform the athlete that delayed recall will be tested

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 in
Total				

Immediate memory score

Concentration

Digits Backward:

"I am going to read you a string of numbers and when I am done, you repeat them back to me backwards, in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7."

If correct, go to next string length. If incorrect, read trial 2. one point possible for each string length. Stop after incorrect on both trials. The digits should be read at the rate of one per second.

	0	1	Alternative digit lists
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

Months in Reverse Order:

Repeat months of the year backwards starting with December.

1 pt. for entire sequence correct

Dec-nov-oct-Sept-Aug-Jul-Jun-May-Apr-Mar-Feb-Jan 0 1

Concentration score of 5

Delayed recall (wait at least 5 minutes)

"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."

Circle each word correctly recalled. Total score equals number of words recalled.

list	alternate word lists			
elbow		candle	baby	finger
apple		paper	monkey	penny
carpet		sugar	perfume	blanket
saddle		sandwich	sunset	lemon
bubble		wagon	iron	insect

Delayed recall score of 5

Athlete Information

Any athlete suspected of having a concussion should be removed from play, and then seek medical evaluation.

Signs to watch for

Problems could arise over the first 24-48 hours. You should not be left alone and must go to a hospital at once if you:

- Have a headache that gets worse
- Are very drowsy or can't be awakened (woken up)
- Can't recognize people or places
- Have repeated vomiting
- Behave unusually or seem confused; are very irritable
- Have seizures (arms and legs jerk uncontrollably)
- Have weak or numb arms or legs
- Are unsteady on your feet; have slurred speech

Remember, it is better to be safe.

Consult your doctor after a suspected concussion.

Return to play

Athletes should not be returned to play the same day of injury.

When returning athletes to play, they should follow a stepwise symptom-limited program, with stages of progression. For example:

1. rest until asymptomatic (physical and mental rest)
2. light aerobic exercise (e.g. stationary cycle)
3. sport-specific exercise
4. non-contact training drills (start light resistance training)
5. full contact training after medical clearance
6. return to competition (game play)

There should be approximately 24 hours (or longer) for each stage and the athlete should return to stage 1 if symptoms recur. resistance training should only be added in the later stages.

Medical clearance should be given before return to play.

Tool	Test domain	Time	Score			
		Date tested Days post injury				
SCAT2	Symptom score					
	Physical signs score					
	Glasgow Coma score (e + V + M)					
	Balance examination score					
	Coordination score					
SAC	orientation score					
	Immediate memory score					
	Concentration score					
	Delayed recall score					
SAC Score						
Total	SCAT2					
Symptom severity score (max possible 132)						
Return to play			n Y n n	n Y n n	n Y n n	n Y n n

Additional comments

Concussion injury advice (To be given to concussed athlete)

This patient has received an injury to the head. A careful medical examination has been carried out and no sign of any serious complications has been found. It is expected that recovery will be rapid, but the patient will need monitoring for a further period by a responsible adult. Your treating physician will provide guidance as to this timeframe.

If you notice any change in behavior, vomiting, dizziness, worsening headache, double vision or excessive drowsiness, please telephone the clinic or the nearest hospital emergency department immediately.

Other important points:

- Rest and avoid strenuous activity for at least 24 hours
- No alcohol
- No sleeping tablets
- Use paracetamol or codeine for headache. Do not use aspirin or anti-inflammatory medication
- Do not drive until medically cleared
- Do not train or play sport until medically cleared

Clinic phone number

Patient's name

Date/time of injury

Date/time of medical review

Treating physician

Contact details or stamp