

Sport Concussion Assessment Tool

This tool represents a standardized method of evaluating people after concussion in sport. This tool has been produced as part of the Summary and Agreement Statement of the Second International Symposium on Concussion in Sport, Prague 2004

For more information see the "Summary and Agreement Statement of the Second International Symposium on Concussion in Sport" in the: Clinical Journal of Sport Medicine 2005; British Journal of Sports Medicine 2005; Neurosurgery 2005; Physician and Sportsmedicine 2005; this tool may be copied for distribution to teams, groups and organizations.

Sports concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces. Several common features that incorporate clinical, pathological and biomechanical injury constructs that may be utilized in defining the nature of a concussive head injury include:

1. Concussion may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an 'impulsive' force transmitted to the head.
2. Concussion typically results in the rapid onset of short-lived impairment or neurological function that resolves spontaneously.
3. Concussion may result in neuropathological changes but the acute clinical symptoms largely reflect a functional disturbance rather than structural injury.
4. Concussion results in a graded set of clinical syndromes that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course.
5. Concussion is typically associated with grossly normal structural neuroimaging studies.

Post Concussion Symptoms

Ask the athlete to score themselves based on how they feel now. It is recognized that a low score may be normal for some athletes, but clinical judgment should be exercised to determine if a change in symptoms has occurred following the suspected concussion event.

It should be recognized that the reporting of symptoms may not be entirely reliable. This may be due to the effects of a concussion or because the athlete's passionate desire to return to competition outweighs their natural inclination to give an honest response.

If possible, ask someone who knows the athlete well about changes in affect, personality, behavior, etc.

Remember, concussion should be suspected in the presence of ANY ONE or more of the following:

- Symptoms (such as headache), or
- Signs (such as loss of consciousness), or
- Memory problems

Any athlete with a suspected concussion should be monitored for deterioration (i.e., should not be left alone) and should not drive a motor vehicle.

The SCAT Card (Sport Concussion Assessment Tool)

What is a concussion? A concussion is a disturbance in the function of the brain caused by a direct or indirect force to the head. It results in a variety of symptoms (like those listed below) and may, or may not, involve memory problems or loss of consciousness.

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

Post Concussion Symptom Scale

	None		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
Balance problems/dizzy	0	1	2	3	4 5 6
Nausea or vomiting	0	1	2	3	4 5 6
Vision problems	0	1	2	3	4 5 6
Hearing problems/ringing	0	1	2	3	4 5 6
"Don't feel right"	0	1	2	3	4 5 6
Feeling "dinged"/"dazed"	0	1	2	3	4 5 6
Confusion	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
Drowsiness	0	1	2	3	4 5 6
Fatigue or low energy	0	1	2	3	4 5 6
More than emotional	0	1	2	3	4 5 6
Irritability	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
(follow up symptoms only)					
Sadness	0	1	2	3	4 5 6
Nervous or anxious	0	1	2	3	4 5 6
Trouble falling asleep	0	1	2	3	4 5 6
Sleeping more than usual	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
Other:	0	1	2	3	4 5 6

What should I do?

Any athlete suspected of having a concussion should be removed from play, and told to 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.**

What can I expect?

Concussion typically results in the rapid onset of short-lived impairment that resolves spontaneously over time. You can expect that you will be told to rest until you are fully recovered (that means resting your body and your mind). Then, your doctor will likely advise that you go through a gradual increase in exercise over several days (or longer) before returning to sport.

**The SCAT Card (Sport Concussion Assessment Tool)
Medical Evaluation**

Name: _____ Date: _____

Sport/Team: _____ Mouth guard? Y N

1) SIGNS

Was there loss of consciousness/unresponsiveness? Y N
 Was there seizure or convulsive activity? Y N
 Was there a balance problem / unsteadiness? Y N

2) MEMORY

Modified Maddocks questions (check if athlete answers correctly)

- At what venue are we? ____ Which half is it? ____
 Who scored last? ____
- What team did we play last? ____: Did we win last game? ____

3) SYMPTOM SCORE

Total number of positive symptoms (from reverse side of the card) = ____

4) COGNITIVE ASSESSMENT (5 word recall)

	(Examples)	Immediate	Delayed
Word 1	_____ cat	_____	_____
Word 2	_____ pen	_____	_____
Word 3	_____ shoe	_____	_____
Word 4	_____ book	_____	_____
Word 5	_____ car	_____	_____

Months in reverse order:

Jun-May-Apr-Mar-Feb-Jan-Dec-Nov-Oct-Sep-Aug-Jul

Digits Backwards (check correct)

5-2-8 3-9-1 _____
 6-2-9-4 4-3-7-1 _____
 8-3-2-7-9 1-4-9-3-6 _____
 7-3-9-1-4-2 5-1-8-4-6-8 _____

Ask delayed 5-word recall now

5) NEUROLOGIC SCREENING

	<u>Pass</u>	<u>Fail</u>
Speech	_____	_____
Eye Motion and Pupils	_____	_____
Pronator Drift	_____	_____
Gait Assessment	_____	_____

Any neurologic screen abnormality necessitates formal neurologic or hospital assessment

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 training
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.

Instructions:

The side of the card is for the use of medical doctors, physical therapists, or athletic therapists. In order to maximize the information gathered from the card, it is strongly suggested that all athletes participating in contact sports complete a baseline evaluation prior to the beginning of their competitive season. This card is a suggested guide only for sports concussion and is not meant to assess more severe forms of brain injury. **Please give a COPY of this card to the athlete for their information and to guide follow up assessment.**

Signs:

Assess for each of these items and circle Y (yes) or N (no).

Memory:

Select any 5 words (an example is given). Avoid choosing related words such as “dark” and “moon” which can be recalled by means of word association. Read each word at a rate of one word per second. The athlete should not be informed of the delayed testing of memory (to be done after the reverse months and/or digits). Choose a different set of words each time you perform a follow-up exam with the same candidate.

Concentration / Attention:

Ask the athlete to recite the months of the year in reverse order, starting with a random month. Do not start with December or January. Circle any months not recited in the correct sequence. For digits backwards, if correct, go to the next string length. If correct, read trial 2. Stop after incorrect on both trials.

Neurologic Screening:

Trained medical personnel must administer this examination. These individuals might include medical doctors, physiotherapists or athletic therapists. Speech should be assessed for fluency and lack slurring. Eye motion should reveal no diplopia in any of the 4 planes of movement (vertical, horizontal and both diagonal planes). The pronator drift is performed by asking the patient to hold both arms in front of them, palms up, with eyes closed. A positive test is pronating the forearm, dropping the arm, or drift away from midline. For gait assessment ask the patient to walk away from you, turn and walk back.

Return to Play:

A structured, graded exertion protocol should be developed, individualized on the basis of sport, age, and the concussion history of the athlete. Exercise or training should be commenced only after the athlete is clearly asymptomatic with physical and cognitive rest. Final decision for clearance to return to competition should ideally be made by a medical doctor.

Notes:
