And

UPMC Beacon Hospital

present

Concussion Guidelines in the GAA

2013 – 2016
Position Statement


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Summary Principles

- Concussion is a brain injury that needs to be taken seriously to protect the long term welfare of all players.
- Any player suspected of having sustained a concussion, should be removed immediately from the field and **should not return to play** on the same day.
- Where a Team Doctor is present, he must advise the person in charge of the team (i.e. Team Manager) in this regard and the player must not be allowed to continue his participation in the game.
- Concussion is an evolving injury. It is important to monitor the player after the injury for progressive deterioration.
- Concussion diagnosis is a clinical judgement – Use of the SCAT 3 can aid the doctor in his/her diagnosis.
- Players suspected of having a concussion, must have adequate rest of at least 24 hours and then must follow a gradual return to play protocol.
- Players must receive medical clearance (by a doctor) before returning to play.

What is Concussion?

Concussion is a brain injury and can be caused by a direct or indirect hit to the player’s head or body. Concussion typically results in an immediate onset of short lived signs and symptoms. However in some cases, the signs and symptoms of concussion may evolve over a number of minutes or hours.

**CONCUSSION MUST BE TAKEN EXTREMELY SERIOUSLY**

Signs and Symptoms

Contrary to popular belief, most concussion injuries occur without a loss of consciousness and so it is important to recognise the other signs and symptoms of concussion. Concussion must be recognised as an evolving injury in the acute stage. Some symptoms develop immediately while other symptoms may appear gradually over time. Monitoring of players after the injury is therefore an important aspect of concussion management.

Diagnosis of acute concussion should involve the following:

1. Player’s subjective report of his/her symptoms.
2. Observation of the player for physical signs of concussion.
3. Assessment of the player for cognitive change or decline.
4. Observation of players for behavioural change.
5. Players report of any sleep disturbance.
Table 1: Concussion Assessment Domains

<table>
<thead>
<tr>
<th>Indicators</th>
<th>What you Would Expect to See</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptoms</strong></td>
<td>Headaches*</td>
</tr>
<tr>
<td></td>
<td>Dizziness</td>
</tr>
<tr>
<td></td>
<td>‘Feeling in a fog.’</td>
</tr>
<tr>
<td><strong>Physical Signs</strong></td>
<td>Loss of consciousness</td>
</tr>
<tr>
<td></td>
<td>Vomiting</td>
</tr>
<tr>
<td></td>
<td>Vacant Facial Expression</td>
</tr>
<tr>
<td></td>
<td>Clutching Head</td>
</tr>
<tr>
<td></td>
<td>Motor In coordination</td>
</tr>
<tr>
<td><strong>Cognitive Impairment</strong></td>
<td>Loss short term memory</td>
</tr>
<tr>
<td></td>
<td>Difficulty with concentration</td>
</tr>
<tr>
<td></td>
<td>Decreased attention</td>
</tr>
<tr>
<td></td>
<td>Diminished work performance</td>
</tr>
<tr>
<td><strong>Behavioural Changes</strong></td>
<td>Irritability</td>
</tr>
<tr>
<td></td>
<td>Anger</td>
</tr>
<tr>
<td></td>
<td>Mood Swings</td>
</tr>
<tr>
<td></td>
<td>Feeling Nervous</td>
</tr>
<tr>
<td></td>
<td>Anxious</td>
</tr>
<tr>
<td><strong>Sleep Disturbance</strong></td>
<td>Drowsiness</td>
</tr>
<tr>
<td></td>
<td>Difficulty Falling Asleep</td>
</tr>
</tbody>
</table>

*Most common symptom

Pitch Assessment of a Concussion Injury

- The player should be assessed by a doctor or registered healthcare practitioner (Physiotherapist/ Nurse) on the field using standard emergency management principles. Particular attention should be given to excluding a cervical spine injury.
  - If no healthcare practitioner is available the player should be removed from practice or play and urgent referral to a doctor is required.
- Once the first aid issues are addressed, an assessment of the concussive injury should include clinical judgement and the use of the SCAT 3.
- The player should NOT be left alone following the injury and regular observation for deterioration is essential over the initial few hours following injury.

*Need to recognise that the appearance of symptoms might be delayed several hours following a concussive episode. Example: there may be no forgetfulness (retrograde amnesia) present at 0 mins post injury, yet forgetfulness (amnesia) may be present at 10 mins post injury.

*Orientation tests (i.e. name, place, and person) have been shown to be an unreliable cognitive function test in the sporting situation.
Return to Play

- A player with a diagnosed concussion should **NEVER** be allowed to return to play on the day of injury.
- Return to play must follow a medically supervised stepwise approach and a player **MUST NEVER** return to play while symptomatic.

The most important aspect of concussion management is physical and cognitive rest until the acute symptoms resolve and then a graded program of exertion prior to medical clearance and return to play (RTP).

1. There should be an initial period of 24-48 hours rest for any player post a concussive injury.
2. RTP protocols following concussion follow a stepwise approach. With this stepwise progression, the players should continue to proceed to the next level if asymptomatic at the current level.
3. Generally each step should take 24 hours so that the athlete would take approximately one week to proceed to full rehabilitation once they are asymptomatic at rest.
4. If any post concussion symptoms occur while in the RTP program, then the player should drop back to the previous asymptomatic level and try to progress again after a further 24 hours period of rest has passed.

**Medical clearance (medical clearance refers to medical doctors) is required prior to return to full contact sports.**

<table>
<thead>
<tr>
<th>Table 1 Gradual Return to Play Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rehabilitation Stage</strong></td>
</tr>
<tr>
<td>1. No Activity</td>
</tr>
<tr>
<td>2. Light Activity</td>
</tr>
<tr>
<td>3. Sports Specific Exercise</td>
</tr>
<tr>
<td>4. No Contact Training Drills</td>
</tr>
<tr>
<td>5. Full Contact Practice</td>
</tr>
<tr>
<td>6. Return to play</td>
</tr>
</tbody>
</table>

**Helping your players cope with their concussion injury.**

The best medical management for concussion is rest (Cognitive and Physical). Players often feel tired and may experience difficulties at work or school when carrying out task which require concentration. Players may also encounter mood difficulties and
feel depressed, anxious or irritable with family or team mates. Support should be provided to players during this recovery period.

Alcohol should be avoided as it may delay recovery and put the player at increased risk for further injury.

When dealing with persistent symptoms, it is essential that players only take medications prescribed by their doctor.

Recovery form concussion should not be rushed nor pressure applied to players to resume playing until recovery is complete. The risk of re-injury is high and may lead to recurrent concussion injuries which can cause long term damage.

Remember ‘‘better to have missed one game than the whole season.’’

**Sports Concussion Assessment Tool 3 (SCAT3)**

While the diagnosis of concussion is a clinical judgment ideally made by a medical professional, the SCAT 3 provides a standardized tool assessing an injured player aged from 13 years and older for concussion. SCAT 3 is designed for use by registered medical practitioners and other clinical personnel that have appropriate training to use SCAT 3.

SCAT 3 consists of two parts - the first part is an initial pitch side assessment of injury severity (Concussion signs, Glasgow Coma Scale and Maddocks Score). Any player with a suspected concussion should be **REMOVED FROM PLAY**, medically assessed, monitored for deterioration and should not drive a motor vehicle until cleared to do so by a registered medical practitioner.

The second part of the SCAT 3 should be carried out after a minimum 15 minute rest period to avoid the influence of exertion and fatigue on the player’s performance. This assessment consists of symptom checklist, symptom severity, as well as neuro cognitive and balance functions.

It is recognised that the SCAT3 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 SCAT3 is normal. The diagnosis of a concussion is a **clinical judgement**.

**Concussion Management in Children 5 years – 12 years**

Concussion management is different due to the following factors:
- Brain development, variable growth rates, language difficulties, child versus parental reports of symptoms, lack of medical coverage at underage games, physical examination in children is usually normal.

Management:
- ✔ Rest for minimum of two weeks - No sports, exertions, minimal TV, PC Use, Music etc
Occasionally there is a need for gradual return to school work, increase breaks during school day etc

References


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*All Correspondence should be directed to:*
GAA Medical, Scientific and Welfare Committee 2013
Ms Ruth Whelan, Physiotherapy Manager, UPMC Beacon Hospital, BSc MSc MISCP.
Appendix 1: SCAT 3 - Medical Professional Use Only

**What is the SCAT3?**

The SCAT3 is a standardized tool for evaluating injured athletes for concussion and can be used in athletes aged from 12 years and older. It supersedes the original SCAT and the SCAT2 published in 2005 and 2009, respectively. For younger persons, aged 12 and under, please use the Child SCAT3. This SCAT3 is designed for use by medical professionals. If you are not qualified, please use the Sport Concussion Recognition Tool. Please see baseline testing with the SCAT3 can be helpful for interpreting post-injury test scores.

Specific instructions for use of the SCAT3 are provided on page 3. If you are not familiar with the SCAT3, please read through these instructions carefully. This tool may be freely copied in its current form for distribution to individuals, teams, groups or organizations. Any revision or reproduction in a digital form requires approval by the Concussion in Sport Group.

**NOTE:** The diagnosis of a concussion is a clinical judgment, ideally made by a medical professional. The SCAT3 should not be used solely to make, or refute, the diagnosis of concussion in the absence of clinical judgement. An athlete may have a concussion even if their SCAT3 is "normal."

**What is a concussion?**

A concussion is a transient brain dysfunction caused by a direct or indirect force to the head. It results in a variety of non-specific signs and/or symptoms (some examples 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 behavior (e.g., change in personality).

**SIDELINE ASSESSMENT**

**Indications for Emergency Management**

**NOTE:** A N to the head can sometimes be associated with a more severe brain injury. Any of the following warrants consideration of activating emergency procedures and urgent transportation to the nearest hospital:

- Glasgow Coma score less than 15
- Unresponsive/unreactive
- Intact retinal injury
- Progressive worsening symptoms or new neurologic signs

**Potential signs of concussion?**

If any of the following signs are observed after a direct or indirect blow to the head, the athlete should stop play immediately, 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
- "Felt, how long?"
  - Y N
- Balance or motor incoordination, dizziness, light-headedness, etc.
  - Y N
- Orientation or confusion, inability to perform appropriately, etc.
  - Y N
- Loss of memory?
  - Y N
- "Felt, how long?"
  - Y N
- "Before or after the injury?"
  - Y N
- Blank or vacant look.
  - Y N
- Visible facial injury in combination with any of the above.
  - Y N

**Glasgow coma scale (GCS)**

1. Best eye response (E)
   - No eye opening 1
   - Eye opening in response to pain 2
   - Eye opening to speech 3
   - Eye opening spontaneously 4

2. Best verbal response (V)
   - No verbal response 1
   - Incomprehensible sounds 2
   - Inappropriate words 3
   - Confused 4
   - Oriented 5

3. Best motor response (M)
   - No motor response 1
   - Extension to pain 2
   - Abnormal flexion to pain 3
   - Flexion/Withdrawal to pain 4
   - Localization to pain 5
   - Grossly abnormal 6

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

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

**Maddocks Score**

*"Inquiring of all you a few questions, please listen carefully and give your best effort."*

Maddocks questions (1 point for each correct answer):

<table>
<thead>
<tr>
<th>Question</th>
<th>Y N</th>
</tr>
</thead>
<tbody>
<tr>
<td>What venue are we at today?</td>
<td>0 1</td>
</tr>
<tr>
<td>Which half is it?</td>
<td>0 1</td>
</tr>
<tr>
<td>Who scored last in this match?</td>
<td>0 1</td>
</tr>
<tr>
<td>What team did you play last week/game?</td>
<td>0 1</td>
</tr>
<tr>
<td>Did your team win the last game?</td>
<td>0 1</td>
</tr>
</tbody>
</table>

**Maddocks score**

Maddocks score validated in sideline diagnosis of concussive injury and increased for serial testing.

**Notes:** Mechanism of injury (“tell me what happened?”)

Any athlete with a suspected concussion should be REMOVED FROM PLAY, medically assessed, monitored for deterioration (i.e., should not be left alone) and should not drive a motor vehicle until cleared to do so by a medical professional. No athlete diagnosed with concussion should be returned to sports participation on the day of injury.

*SCAT3 Sport Concussion Assessment Tool © 2010 Concussion in Sport Group*
BACKGROUND

Name:  
Date:  
Examiner:  
Sport/team/school:  
Date/time of injury:  
Age:  
Gender:  

Years of education completed:  
Dominant hand:  right  left  neither  

How many concussions do you think you have had in the past?  
When was the most recent concussion?  
How long was your recovery from the most recent concussion?  
Have you ever been hospitalized or had medical imaging done for a head injury?  
Have you ever been diagnosed with headache or migraines?  
Do you have a learning disability, dyslexia, ADD/ADHD?  
Have you ever been diagnosed with depression, anxiety, or other psychiatric disorder?  
Has anyone in your family ever been diagnosed with any of these problems?  
Are you on any medications? If yes, please list:  

SCAT3 to be done in resting state. Best done 10 or more minutes post-exercise.

SYMPTOM EVALUATION

How do you feel?

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

<table>
<thead>
<tr>
<th>Symptom</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Pressure in head&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Neck Pain</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Dizziness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sensitivity to light</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sensitivity to noise</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling down/tired</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Feeling like &quot;a fog&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Don't feel right&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Difficulty concentrating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Difficulty remembering</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Fatigue or low energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Confusion</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Trouble falling asleep</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>More sensitive</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Irritability</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sadness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Nervous or anxious</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Total number of symptoms:  
Symptom severity score:  

Cognitive & Physical Evaluation

Cognitive Assessment

Standardized Assessment of Concussion (SAC)

Orientation (circle the correct answer)

- What month is it?
- What is the date today?
- What is the day of the week?
- What year is it?
- What time is it?
- What time is it right now (within 15 min)?

Orientation score:  

Immediate Memory

<table>
<thead>
<tr>
<th>Item</th>
<th>Total 1</th>
<th>Total 2</th>
<th>Total 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4</td>
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<td></td>
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<td>5</td>
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<td>6</td>
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<td>7</td>
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<td>8</td>
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<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Immediate Memory Score:  

Concentration: Digits Backward

- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9
- 4-9 3-2 2-1 1-0 0-9

Concentration score:  

Neck Examination:

- Range of motion: Tenderness, Upper and lower limb sensation & strength
- Findings:  

Balance Examination

- Do any of the following tests: Footboard (shoes, barnboard, barrels, tape, etc.)
- Modified Balance Error Scoring System (BESS) testing:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double-leg stance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-leg stance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tandem stance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tandem stance (with dominant foot)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tandem stance (without body)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tandem with arm (not a fall)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coordination examination

- Upper limbs coordination: Which arm was tested:
- Findings:  

SAC Delayed Recall

- Delayed recall score:  

Delay:  

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INSTRUCTIONS

Words in italics throughout the SCAT3 are the instructions given to the athlete by the tester.

Symptom Scale

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

To be completed by the athlete. In situations where the symptom scale is completed after exercise, it should still be used in ascending order, at least 15 minutes post exercise.

For trivial levels of symptoms, maximally possible is 1.2.
For Symptomatic scores, add all scores in italic, maximally possible is 12 (4 x 3).

SAC

Immediate Memory

"Arranging 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 1 & 2

"Arranging to repeat the same list again. Repeat back as many words as you can remember in any order, even in the order they were read.

Compared 2 trials regardless of score on trial 1.3.

Score 1 pt. for each correct response. Total score equals non-atrials all 3 trials. Dots not return the athlete’s information will be marked.

Concentration

Digits backward

"Arranging to read you 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 7-6-5, you should say 5-6-7.

If correct, go to next string length. If incorrect, read list 2. One point possible for each string length. Data on error be returned to the last trial.

Months in reverse order

"You will list the months of the year in reverse order, start the last month and go backwards. So you say December, November...

If correct, go to next trial. If incorrect, read trial 3.

Score 1 pt. for each correct response

Balance Examination

Modified Balance Error Scoring System (BBESS) testing

The balance testing is modified from the Balance Error Scoring System (BESS). A step-by-step watch the second hand is numbered for the testing.

"I am going to give you a coordination now. Please sit comfortably on the chair with your feet flat on the ground and your arms at your sides.

(a) Double leg stance:

"The first stance is standing with your feet together with your hands on your hips and with your eyes closed. You should try to maintain stability in your position and try not to wobble. I will count the number of times you move out of this position. I will start timing when you are seated and hold your feet.

(b) Single leg stance:

"If you were to kick a ball, which foot would you use? This will be the dominant foot. I will stand on your non-dominant foot. The dominant leg should be held in approximately 10 degrees of hip extension and 30 degrees of knee extension. Begin by standing with your left leg slightly forward. I will count the number of times you move out of this position. I will start timing when you are seated and hold your feet.

(c) Tandem stance:

"I want you to step forward with your non-dominant foot in back. Your weight should be evenly distributed on both feet. Again, you should try to maintain stability for 20 seconds, with your hands on your hips and your eyes closed. I will count the number of times you move out of this position, you step out of the position, open your eyes and return to the start position.

Balance testing – types of errors

1. Hands fall off side of seat
2. Opening eyes
3. Step, stumble, or fall
4. Moving hip into > 30 degrees abduction
5. Sitting in front of heel
6. Remaining out of test position > 5 sec

Each of the 20-second trials is scored by counting the errors, or deviations from the proper stance, accumulate by the athlete. The examiner will begin counting errors only after the individual has assumed the proper start position. The modified BBESS is calculated by adding one error point for each error during the three 20-second tests. The maximum total number of errors for any single condition is 10. If a subject commits multiple errors simultaneously, only one error is recorded but the athlete should quickly return to the testing position, and counting should resume once subject is set. Subjects that are unable to maintain the testing procedure for a minimum of five seconds at the start are assigned the highest possible score, two, for that testing condition.

OPTION: For further assessment, the same 3 stance can be performed on a surface of medium density foam (e.g., approximately 50 cm x 40 cm x 6 cm).

Tandem Gait

Participants are instructed to stand with their feet together between a starting line (the test is best done with barefoot condition). Then, they walk in a forward direction as quickly and as accurately as possible along a 50 cm wide (sports tape) 3-meter line with the alternate foot taking the lead (ensuring that they approximate their feet and toe in each step). Once they cross the end of the line (the leading leg leading back), they return to the starting line using the same gait. A total of trial number and the best time is recorded. Athletes should complete the test in 14 seconds. Athletes fail the test if they step off the line, if they fall on the line, or if the touch on the examiner or subject. In this case, the time is not recorded and the trial repeated, if appropriate.

Coordination Examination

Upper limb coordination

Finger to nose (FTN) task:

"I am going to give you your coordination now. Please sit comfortably on the chair with your eyes closed and your arms on your sides. I will hold your finger and your index finger (10 degrees) and fingers extended, through a front of you. When I give a start signal, I would like you to perform the specific finger to nose expiration by using your index finger to reach the tip of the index fingers, and then return to the starting position. We want you to do this as quickly and accurately as possible.

Sitting: 3 correct repetitions in 4 seconds or

Note: For Taxor (not the test) if the test is divided, both hands should perform the operation. Failure should be scored as a 0.

References & Footnotes

1. This tool has been developed by a group of international experts at the 4th International Congress, meeting on Concussion in Sport held in Zurich, Switzerland in November 2012. The full details of the conference outcomes and the authors of the tool are published in The Brain Injury Prevention and Health Protection. 2013. Volume 47, Issue 3. The evidence-based paper was also co-authored in the following biomedico-journal with the copyright by the Concussion in Sport Group, to be used in restricted distribution, providing no advantages are made.


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. The athlete should not be left alone and must go to a hospital at once if they:
- Have a headache that gets worse
- Are very drowsy or can’t be awakened
- Can’t recognize people or places
- Have repeated vomiting
- Have unusually or seem confused, are very irritable
- Have seizures (arms and legs jerk uncontrollably)
- Have weak or numb arms or legs
- Are unsteady on their 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 be medically cleared and then follow a stepwise supervised program, with stages of progression:

For example:

<table>
<thead>
<tr>
<th>Rehabilitation stage</th>
<th>Initial exercise at each stage of rehabilitation</th>
<th>Objective of each stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Physical and cognitive rest</td>
<td>Recovery</td>
</tr>
<tr>
<td>Light aerobic exercise</td>
<td>Walking, stretching, simple tasks for poor balance and coordination.</td>
<td>Add movement</td>
</tr>
<tr>
<td>Sport-specific exercise</td>
<td>Standing, balance, running in circles, no head contact.</td>
<td>Add running and jumping</td>
</tr>
<tr>
<td>Non-contact training</td>
<td>Programs to develop throwing, catching, dribbling, and decision making.</td>
<td>Add sports-specific training</td>
</tr>
<tr>
<td>Full-contact practice</td>
<td>Full contact practice in a controlled environment.</td>
<td>Return to play</td>
</tr>
</tbody>
</table>

There should be at least 24 hours (or longer) for each stage and if symptoms recur the athlete should rest until they resolve once again and then resume the program.

In the event of persistent symptoms for more than 10 days, then consultation by a medical practitioner who is expert in the management of concussion is recommended.

Medical clearance should be given before return to play.

________________________________________________________

CONCUSSION INJURY ADVICE

(To be given to the person monitoring the 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. Recovery time is variable across individuals and the patient will need monitoring for a further period by a responsible adult. Your treating physician will provide guidance as to the timelines.

If you notice any change in behaviour, vomiting, dizziness, worsening headache, double vision or excessive drowsiness, please contact your doctor or the nearest hospital emergency department immediately.

Other important points:
- Rest (physically and mentally), including training or playing sports until symptoms resolve and you are medically cleared
- No alcohol
- No prescription or non-prescription drugs without medical supervision, specifically:
  - No sleeping tablets
  - Do not use aspirin, anti-inflammatory medication or rubbing pain killers
  - Do not drive or play sport until medically cleared

Clinic phone number

________________________________________________________
Appendix 2: Pocket Concussion Recognition Tool – For Use By All persons involved in Sport

Pocket CONCUSSION RECOGNITION TOOL™
To help identify concussion in children, youth and adults

RECOGNIZE & REMOVE
Concussion should be suspected if one or more of the following visible clues, signs, symptoms or errors in memory questions are present.

1. Visible clues of suspected concussion
Any one or more of the following visual clues can indicate a possible concussion:
- Loss of consciousness or responsiveness
- Lying motionless on ground/Slow to get up
- Unsteady on feet / Balance problems or falling over/Incoordination
- Grabbing/Clutching of head
- Dazed, blank or vacant look
- Confused/Not aware of plays or events

2. Signs and symptoms of suspected concussion
Presence of any one or more of the following signs & symptoms may suggest a concussion:
- Loss of consciousness
- Seizure or convolution
- Balance problems
- Nausea or vomiting
- Drowsiness
- More emotional
- Irritability
- Sadness
- Fatigue or low energy
- Nervous or anxious
- “Don’t feel right”
- Difficulty remembering
- Headache
- Dizziness
- Confusion
- Feeling slowed down
- "Pressure in head"
- Blurred vision
- Sensitivity to light
- Amnesia
- Feeling like “in a fog”
- Neck pain
- Sensitivity to noise
- Difficulty concentrating

3. Memory function
Failure to answer any of these questions correctly may suggest a concussion.
- “What venue are we at today?”
- “Which half is it now?”
- “Who scored last in this game?”
- “What team did you play last week/game?”
- “Did your team win the last game?”

Any athlete with a suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, and should not be returned to activity until they are assessed medically. Athletes with a suspected concussion should not be left alone and should not drive a motor vehicle.

It is recommended that, in all cases of suspected concussion, the player is referred to a medical professional for diagnosis and guidance as well as return to play decisions, even if the symptoms resolve.

RED FLAGS
If ANY of the following are reported then the player should be safely and immediately removed from the field. If no qualified medical professional is available, consider transporting by ambulance for urgent medical assessment:
- Athlete complains of neck pain
- Increasing confusion or irritability
- Repeated vomiting
- Seizure or convolution
- Weakness or tingling/turming in arms or legs
- Deteriorating conscious state
- Severe or increasing headache
- Unusual behavior change
- Double vision

Remember:
- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Do not attempt to move the player (other than required for airway support) unless trained to do so.
- Do not remove helmet (if present) unless trained to do so.

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