Luther College
Athletic Training
Concussion Policy

Standard Operating Procedures for Medical Emergencies
Mild Traumatic Brain Injuries (MTBI)/Cerebral Concussions
Recognition and management of concussions follows the recommendations and guidelines of the following:


**Athletic Department Concussion Policy**

The NCAA Concussion Safety Protocol Checklist mandates that institutions implement the following:

1. An annual process that ensures student-athletes, coaches, team physicians, athletic trainers and directors of athletics are educated about the signs and symptoms of concussion;
2. A pre-participation management plan that specifies documentation that each varsity student-athlete in collision and contact sports has received at least one pre-participation baseline concussion assessment;
3. A plan to ensure medical personnel are available via telephone, messaging, email, beeper or other immediate communication at all NCAA varsity practices and present on site at all NCAA varsity competitions for contact / collision sports.
4. A concussion recognition and diagnosis plan that ensures a student-athlete who exhibits signs, symptoms or behaviors consistent with a concussion shall be removed from athletics activities, is evaluated by a medical staff member with experience in the evaluation and management of concussion, and that precludes a student-athlete diagnosed with a concussion from returning to athletic activity for at least the remainder of that calendar day;
5. An initial concussion evaluation management plan that specifies symptom assessment, physical and neurological exam, cognitive assessment, balance exam, and assessment for cervical spine trauma, skull fracture and intracranial bleed.
6. A post-concussion management plan that specifies emergency action planning, serial evaluation and monitoring after concussion, post-concussion care documentation, and plan for physician evaluation for patients with prolonged recovery;
7. A return-to-play management plan that requires medical clearance for a student-athlete with a concussion to return to athletics activity as determined by a physician or medically qualified physician designee and a stepwise progression management plan;
8. A return-to-learn management plan identifying concussion multidisciplinary team members and a general plan to assist the concussed student-athlete addressing return-to-learn activities; and
9. A management plan to reduce head trauma exposure

**PRESEASON CONCUSSION EDUCATION**

- Each academic calendar year all student-athletes will go through an educational presentation on concussion. This educational presentation will be presented by an athletic training staff member as a part of the student-athlete eligibility meeting. Concussion education information via NCAA concussion fact sheets or other applicable materials will be made available annually to student-athletes, coaches, team physicians, athletic trainers and directors of athletics.
- In addition, student-athletes must sign a statement in which they acknowledge that they have read and understood the concussion material and accept the responsibility for reporting their
injuries and illnesses to the institutional medical staff, including signs and symptoms of concussions.

**PRE-PARTICIPATION BASELINE ASSESSMENT**

- All student-athletes that compete in a collision or high contact sport will be required to undergo an initial baseline assessment that addresses brain injury and concussion history, symptom evaluation, cognitive assessment, and balance evaluation. The only collision sport at Luther College is football while contact sports include men’s and women’s basketball and soccer, wrestling, softball, baseball, volleyball, diving, and pole vault.
- Baseline testing will include use of ImPACT Testing, a computerized neurocognitive test which measures attention span, working memory, sustained and selective attention time, non-verbal problem solving, and reaction time. Additionally, athletes will be taken through a SCAT5 assessment which includes a symptom evaluation using the Symptoms Rating Scale (SRS2), a cognitive screen using the Standardized Assessment of Concussion (SAC4), and balance assessment using the modified Balance Error Scoring System (mBESS). Finally, each athlete will go through a Physiological Signs/Symptoms Exam to be assessed for cervical range of motion, visual acuity, field of vision, and visual tracking, and balance during gait (tandem walk).
- Any student-athlete who has had a documented concussion in the past 6 to 12 months will be required to complete a new baseline concussion assessment prior to the start of the next sport season (traditional or non-traditional).
- The team physicians determine pre-participation clearance and/or the need for additional consultation or testing.

**RECOGNITION AND DIAGNOSIS OF CONCUSSION**

**Medical Personnel Availability**

- A certified athletic trainer or team physician with training in the diagnosis, treatment and initial management of acute concussion must be “present” at all NCAA varsity competitions in the following contact/collision sports: basketball; football; pole vault; soccer; wrestling. To be present means to be on site at the campus or arena of the competition. Medical personnel may be from either team, or may be independently contracted for the event.

- A certified athletic trainer or team physician with training in the diagnosis, treatment and initial management of acute concussion must be “available” at all NCAA varsity practices in the following contact/collision sports: basketball; football; pole vault; soccer; wrestling. To be available means that, at a minimum, medical personnel can be contacted at any time during the practice via telephone, messaging, email, beeper or other immediate communication means. Further, the case can be discussed through such communication, and immediate arrangements can be made for the athlete to be evaluated.
Recognition of the Signs / Symptoms of Mild Traumatic Brain Injuries (MTBI) / Cerebral Concussions

**Physical**
- Headache
- Nausea
- Vomiting
- Dizziness
- Balance problems/irregularities
- Fatigue
- Sensitivity to light
- Sensitivity to noise
- Tinnitus
- Numbness/tingling
- Dazed
- Irritable
- Sad
- Anxious
- Nervous
- Depressed
- More emotional

**Cognitive**
- Feeling mentally “foggy”
- Feeling slowed down
- Difficulty concentrating
- Difficulty remembering
- Amnesia – forgetful of information and conversations
- -Retrograde (memory loss of events prior to trauma)
- -Anterograde (memory loss of events after trauma)
- Confusion about recent events
- Answers questions slowly
- Emotional
- Sleep
- Drowsiness
- Sleeping more than usual
- Sleeping less than usual
- Difficulty falling asleep

**Emotional**

**Sleep**

**Initial Management of Mild Traumatic Brain Injuries (mTBI)/Cerebral Concussions**

1. Establish the athlete’s level of responsiveness including Glasgow Coma Scale (GCS) and initiate the emergency action plan, if needed. An athlete should be transported if he/she has any of the following:
   - Glasgow Coma Scale < 13.
   - Prolonged loss of consciousness.
   - Focal neurological deficit suggesting intracranial trauma.
   - Repetitive emesis.
   - Persistently diminished/worsening mental status or other neurological signs/symptoms.
   - Spine injury.
2. When an athlete has sustained a blow to the head that may be severe enough to cause further harm (skull or brain injury), it is recommended that personnel follow the procedures for spinal management.
3. Stabilize the head and neck, if needed.
4. Perform an initial assessment and care for any life-threatening conditions (ABCs)
5. Perform a physical assessment, including observation and palpation for cervical spine trauma, skull fracture and intracranial bleed. Establish the presence of CSF if the athlete is bleeding from the nose or ears.
6. Complete a history of the injury taking into account the patient and others, especially if a loss of consciousness occurs.
7. Complete a full concussion assessment (see “Concussion Assessment” below)
   a) Any student-athlete with signs/symptoms/behaviors consistent with concussion:
      i. Must be removed from practice or competition.
      ii. Must be evaluated by an athletic trainer or team physician with concussion experience.
iii. Must be removed from practice/play for that calendar day if concussion is confirmed.

8. Consider referring the athlete for medical evaluation and diagnostic testing to rule out intracranial bleeding.

Concussion Assessment

- A student-athlete with a suspected concussion will be assessed by a certified athletic trainer by taking a history of the current injury and any previously related concerns. The SCAT5 assessment will be completed which includes a symptom evaluation using the Symptoms Rating Scale (SRS2), a cognitive screen using the Standardized Assessment of Concussion (SAC3), and balance assessment using the modified Balance Error Scoring System (mBESS). Finally, each athlete will go through a Physiological Signs/Symptoms Exam to be assessed for cervical range of motion, visual acuity, field of vision, and visual tracking, and balance during gait (tandem walk). Additional testing may include respirations, heart rate, blood pressure, cranial nerves assessment, and Vestibular-Ocular Motor Screening (VOMS).

- If an athlete is determined to have a concussion, the athlete will be removed from all athletic activities (contests, practices, and conditioning) for the remainder of the day in order to progress through the concussion management protocol. An initial post-concussion ImPACT exam will be attempted and/or completed by the athlete within 24 to 72 hours as another component of the initial assessment in order to measure attention span, working memory, sustained and selective attention time, non-verbal problem solving, and reaction time. Any follow-up ImPACT testing will be completed only after the SCAT5 and all physiological sign/symptoms are back to the baseline measures (within standard deviation of the tests) unless otherwise instructed by the Luther College Medical Director or one of the team physicians.

POST-CONCUSSION MANAGEMENT

1. When the student-athlete suffers from severe symptoms the emergency action plan (EAP), including transportation for further medical care, should be utilized for any of the following:
   - Glasgow Coma Scale < 13.
   - Prolonged loss of consciousness.
   - Focal neurological deficit suggesting intracranial trauma.
   - Repetitive emesis.
   - Persistently diminished/worsening mental status or other neurological signs/symptoms.
   - Spine injury.

In the case of a non-emergent concussion but when there is a lack of a reliable person to monitor the athlete at home the student-athlete will be referred to a physician.

2. As deemed appropriate, the student-athlete may be discharged home with a reliable observer, either a parent or roommate, with oral and/or written concussion care instructions to begin physical and cognitive recovery. The concussed athlete should not be allowed to drive for at least 24 hours due to slower reaction time, trouble paying attention, poor physical coordination and poor judgment resulting from a concussion.
3. The athlete should follow-up with the certified athletic training staff in 24-48 hours for further evaluation. The certified athletic trainer will be in contact with one of the designated athletic department team physicians to ensure the athlete follows up with a physician. Further serial follow-up will be done on an as needed basis thereafter until complete recovery and/or return to play is achieved OR the athlete is disqualified from further athletic participation OR when the athlete discontinues athletic participation will be referred to health services for transfer of care.

4. In the case of an athlete with prolonged recovery (>14 days), in order to consider additional diagnoses including post-concussion syndrome, sleep dysfunction, migraine or other headache disorders, mood disorders such as anxiety and depression, ocular or vestibular dysfunction, the athlete will be referred on to a specialist (neurologist, psychologist, physical therapist, etc) as needed.

**RETURN-TO-LEARN**

- The athletic trainer assigned to the team that the concussed student athlete is a member of will contact the following multidisciplinary team members regarding return-to-learn needs:
  - Sue Halverson in Student Life, halversu@luther.edu, ext. 1020
  - Diane Tappe in Health Services, tappdi01@luther.edu, ext. 1045 or ext. 1073
  - Gwen VanGerpen in Student Academic Support Center, vangg201@luther.edu, ext. 2074
  - Sally Mallam-Hovden in Disability Accommodations and Academic Support, mallamsa@luther.edu, ext. 1481

- As needed, the concussed athlete may need to be removed from all or a portion of his/her academic activities or be provided modification until such time he/she is back to normal physiological and cognitive function. Student Life will address contacting and the academic modifications with professors. The following may be utilized as needed:
  - No classroom activity on same day as the concussion.
  - Individualized initial plan that includes:
    - Remaining at home/dorm if the student-athlete cannot tolerate light cognitive activity.
    - Gradual return to classroom/studying as tolerated.

- Modification of schedule/academic accommodations for up to two weeks, as indicated, with help from the identified point person.

- Engaging campus resources for cases that cannot be managed through schedule modification/academic accommodations.
  - Such campus resources must be consistent with ADAAA, and include at least one of the following:
    - Learning specialists.
    - Office of disability services.
    - ADAAA office.

- Re-evaluation by the team physician will be addressed if concussion symptoms worsen with academic challenges, by the team physician and members of the multidisciplinary team, as appropriate, for a student-athlete with symptoms lasting longer than two weeks.
**RETURN-TO-PLAY**

- The ATC, in conjunction with the physician, will use the SCAT5 and ImPACT concussion software as a tool in making return to play decisions after a concussion. Once the athlete's SCAT5 assessment is within baseline measures and the patient has remained symptom-free at rest while without analgesic medication administration for a minimum of 24 hours, he/she will go through ImPACT testing until that student-athlete's test shows him/her to be back to his/her baseline scores. If an athlete with baseline scores is off in a post-injury test in any category by less than 20%, he/she can be retested the following day. If the post-injury test is more than 20% off of baseline, the athlete will need to wait at least 48 hours before being retested. If an athlete sustains a concussion but has not had a baseline ImPACT test, the following percentiles relative to age matched normative data can be used as guidelines for decision making purposes when the athlete is asymptomatic:
  - > 73% for an exceptional student
  - 50-73% for an above average student
  - 23-50% for an average student
  - <27% should be evaluated by neuropsychologist

**Functional Return-to-Play (RTP) Protocol**

**Step 1 : Symptom-Limited Activity**: Daily activities that do not provoke symptoms. [Recovery-Gradual reintroduction of work/school activities]

**Following Medical Clearance from Physician/Physician Designee - Begin Return to Play Protocol**

When the student-athlete has all symptoms gone and ImPACT is back to normal, the physician may allow the athlete to begin the Functional Return-to-Play (RTP) Protocol under the guidance of the certified athletic trainer. In some instances, a physician may allow the athletic trainer to begin and progress the athlete through the entire RTP protocol if the athlete remains asymptomatic throughout the progression allowing full return to participation. The Functional Return to Play protocol follows the six steps listed below with the requirement that each step must be accomplished without return of any signs or symptoms of a concussion before moving on to the next step. An athlete may not advance more than one step per day. In the event that an athlete becomes symptomatic the athletic trainer will make contact with the physician regarding recovery progression.

**Step 2 : Light Aerobic Exercise**: 20 minute stationary bike ride/jog/walk/swim; Interval bike ride:30 sec sprint/30 sec recovery x 10; and BW circuit: Squats/Push Ups/Sit-ups/Jumping Jacks x 20 sec x 3 (<70% max HR); No Resistance Training. [Increase Heart Rate]. Individual Activity Supervised by AT Staff

**Step 3 : Sport Specific Exercise**: 60 yard shuttle run x 10 (40 sec rest); and plyometric workout: 10 yard bounding/10 med ball throws/10 vertical jumps x 3; and non-contact, sports-specific drills for approximately 15 minutes; No Head Impact Activities. [Add Movement] Individual Activity Supervised by AT Staff

**Step 4 : Non-Contact Training Drills**: non-contact, sports-specific drills for approximately 15 minutes; Harder training drills; May start progressive resistance training [Exercise, Coordination, and Cognitive Load] Individual/Team Activity Supervised by AT Staff
**Step 5 : Medical Clearance from Physician/Physician Designee for Full, Unlimited Contact Practice**
Limited, controlled return to full-contact practice [Restore Confidence and Assess Functional Skills by Coaching Staff] Team Activity Supervised by AT Staff

**Step 6 : Full Sport Participation**
Normal event/game participation/play. At any point, if the student-athlete becomes symptomatic (i.e., more symptomatic than baseline), or scores on clinical/cognitive measures decline, the team physician should be notified and the student-athlete should be returned to the previous level of activity.

Final determination of return-to-play ultimately resides with the team physician/physician designee.
Appendix A

(Concussion Checklist)
Concussion Checklist

Patient Name:__________________  Sport:__________________  DOI:__________________

☐ Baseline Testing Completed (ImPACT & SCAT5)

Date Completed: ____________________

Initial Evaluation (Day 1)

☐ Start Daily Progress Note

☐ History (MOI, S/S, motion sickness, migraines, anxiety)

☐ Documentation of serial follow-up (i.e. next appointment)

☐ 24-48 hours post diagnosis SCAT5

☐ 24-48 hours post diagnosis ImPACT

☐ Notified Student Life for Return to Learn considerations

☐ Given athlete/roommate home care instructions

☐ Follow-up plan

☐ Daily Follow-up Exams with Graded Symptoms Sheet

☐ Classroom/Academic issues

☐ Addressed activity level

☐ Dietary intake, sleep patterns, current medications (type, dosage, etc.)

☐ Explanation of Graded Symptoms scores

☐ Future Instructions (activity level, ER, medications, class)

Return to Baseline

☐ Completed SCAT5 & ImPACT

Return to Play

☐ Step 1: Symptom-Limited Activity

☐ Communication with physician for clearance to Step 2

☐ Step 2: Light Aerobic Exercise

☐ Step 3: Sport Specific Exercise

☐ Step 4: Non-Contact Training Drills/weight lifting

☐ Communication with physician for clearance to Step 5

☐ Step 5: Full, Unlimited Contact Practice

☐ Step 6: Full Sport Participation

☐ Follow up with athlete 1-2 week post full RTP

ATC Signature:__________________
Appendix B

(SCAT5)
WHAT IS THE SCAT5?

The SCAT5 is a standardized tool for evaluating concussions designed for use by physicians and licensed healthcare professionals1. The SCAT5 cannot be performed correctly in less than 10 minutes.

If you are not a physician or licensed healthcare professional, please use the Concussion Recognition Tool 5 (CRT5). The SCAT5 is to be used for evaluating athletes aged 13 years and older. For children aged 12 years or younger, please use the Child SCAT5.

Preseason SCAT5 baseline testing can be useful for interpreting post-injury test scores, but is not required for that purpose. Detailed instructions for use of the SCAT5 are provided on page 7. Please read through these instructions carefully before testing the athlete. Brief verbal instructions for each test are given in italics. The only equipment required for the tester is a watch or timer.

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Recognise and Remove

A head impact by either a direct blow or indirect transmission of force can be associated with a serious and potentially fatal brain injury. If there are significant concerns, including any of the red flags listed in Box 1, then activation of emergency procedures and urgent transport to the nearest hospital should be arranged.

Key points

- Any athlete with suspected concussion should be REMOVED FROM PLAY, medically assessed and monitored for deterioration. No athlete diagnosed with concussion should be returned to play on the day of injury.
- If an athlete is suspected of having a concussion and medical personnel are not immediately available, the athlete should be referred to a medical facility for urgent assessment.
- Athletes with suspected concussion should not drink alcohol, use recreational drugs and should not drive a motor vehicle until cleared to do so by a medical professional.
- Concussion signs and symptoms evolve over time and it is important to consider repeat evaluation in the assessment of concussion.
- The diagnosis of a concussion is a clinical judgment, made by a medical professional. The SCAT5 should NOT be used by itself to make, or exclude, the diagnosis of concussion. An athlete may have a concussion even if their SCAT5 is “normal”.

Remember:

- The basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Do not attempt to move the athlete (other than that required for airway management) unless trained to do so.
- Assessment for a spinal cord injury is a critical part of the initial on-field assessment.
- Do not remove a helmet or any other equipment unless trained to do so safely.

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IMMEDIATE OR ON-FIELD ASSESSMENT

The following elements should be assessed for all athletes who are suspected of having a concussion prior to proceeding to the neurocognitive assessment and ideally should be done on-field after the first first aid / emergency care priorities are completed.

If any of the “Red Flags” or observable signs are noted after a direct or indirect blow to the head, the athlete should be immediately and safely removed from participation and evaluated by a physician or licensed healthcare professional.

Consideration of transportation to a medical facility should be at the discretion of the physician or licensed healthcare professional.

The GCS is important as a standard measure for all patients and can be done serially if necessary in the event of deterioration in conscious state. The Maddocks questions and cervical spine exam are critical steps of the immediate assessment; however, these do not need to be done serially.

**STEP 1: RED FLAGS**

- Neck pain or tenderness
- Double vision
- Weakness or tingling/burning in arms or legs
- Severe or increasing headache
- Seizure or convulsion
- Loss of consciousness
- Deteriorating conscious state
- Vomiting
- Increasingly restless, agitated or combative

**STEP 2: OBSERVABLE SIGNS**

<table>
<thead>
<tr>
<th>Witnessed</th>
<th>Observed on Video</th>
<th>Lying motionless on the playing surface</th>
<th>Balance / gait difficulties / motor incoordination: stumbling, slow / laboured movements</th>
<th>Disorientation or confusion, or an inability to respond appropriately to questions</th>
<th>Blank or vacant look</th>
<th>Facial injury after head trauma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

**STEP 3: MEMORY ASSESSMENT - MADDOCKS QUESTIONS**

"I am going to ask you a few questions, please listen carefully and give your best effort. First, tell me what happened?"

Mark Y for correct answer / N for incorrect

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

**STEP 4: EXAMINATION**

**GLASGOW COMA SCALE (GCS)**

<table>
<thead>
<tr>
<th>Time of assessment</th>
<th>Date of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best eye response (E)</td>
<td></td>
</tr>
<tr>
<td>No eye opening</td>
<td>1 1 1</td>
</tr>
<tr>
<td>Eye opening in response to pain</td>
<td>2 2 2</td>
</tr>
<tr>
<td>Eye opening to speech</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Eyes opening spontaneously</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Best verbal response (V)</td>
<td></td>
</tr>
<tr>
<td>No verbal response</td>
<td>1 1 1</td>
</tr>
<tr>
<td>Incomprehensible sounds</td>
<td>2 2 2</td>
</tr>
<tr>
<td>Inappropriate words</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Confused</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Oriented</td>
<td>5 5 5</td>
</tr>
<tr>
<td>Best motor response (M)</td>
<td></td>
</tr>
<tr>
<td>No motor response</td>
<td>1 1 1</td>
</tr>
<tr>
<td>Extension to pain</td>
<td>2 2 2</td>
</tr>
<tr>
<td>Abnormal flexion to pain</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Flexion / Withdrawal to pain</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Localizes to pain</td>
<td>5 5 5</td>
</tr>
<tr>
<td>Obey commands</td>
<td>6 6 6</td>
</tr>
</tbody>
</table>

**In a patient who is not lucid or fully conscious, a cervical spine injury should be assumed until proven otherwise.**

**CERVICAL SPINE ASSESSMENT**

- Does the athlete report that their neck is pain free at rest? Y N
- If there is NO neck pain at rest, does the athlete have a full range of ACTIVE pain free movement? Y N
- Is the limb strength and sensation normal? Y N

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OFFICE OR OFF-FIELD ASSESSMENT

Please note that the neurocognitive assessment should be done in a distraction-free environment with the athlete in a resting state.

STEP 1: ATHLETE BACKGROUND

Sport / team / school: ________________________________
Date / time of injury: ________________________________
Years of education completed: _______________________
Age: ____________________
Gender: M / F / Other
Dominant hand: left / neither / right
How many diagnosed concussions has the athlete had in the past?: _______________________
When was the most recent concussion?: _______________________
How long was the recovery (time to being cleared to play) from the most recent concussion?: (days)

Has the athlete ever been:

- Hospitalized for a head injury? [ ] Yes [ ] No
- Diagnosed / treated for headache disorder or migraines? [ ] Yes [ ] No
- Diagnosed with a learning disability / dyslexia? [ ] Yes [ ] No
- Diagnosed with ADD / ADHD? [ ] Yes [ ] No
- Diagnosed with depression, anxiety or other psychiatric disorder? [ ] Yes [ ] No

Current medications? If yes, please list:

__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

STEP 2: SYMPTOM EVALUATION

The athlete should be given the symptom form and asked to read this instruction paragraph out loud then complete the symptom scale. For the baseline assessment, the athlete should rate his/her symptoms based on how he/she typically feels and for the post injury assessment the athlete should rate their symptoms at this point in time.

Please Check: [ ] Baseline [ ] Post-Injury

Please hand the form to the athlete

<table>
<thead>
<tr>
<th>Symptom</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Pressure in head&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Neck Pain</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Dizziness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Balance problems</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sensitivity to light</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sensitivity to noise</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Feeling slowed down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Feeling like &quot;in a fog&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Don’t feel right&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Difficulty concentrating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Difficulty remembering</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fatigue or low energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Confusion</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>More emotional</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Irritability</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sadness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nervous or Anxious</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Trouble falling asleep (if applicable)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Total number of symptoms: of 22

Symptom severity score: of 132

Do your symptoms get worse with physical activity? [ ] Y [ ] N

Do your symptoms get worse with mental activity? [ ] Y [ ] N

If 100% is feeling perfectly normal, what percent of normal do you feel?

If not 100%, why?

Please hand form back to examiner
STEP 3: COGNITIVE SCREENING

**Standardised Assessment of Concussion (SAC)**

### ORIENTATION

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>What month is it?</td>
<td>0</td>
</tr>
<tr>
<td>What is the date today?</td>
<td>0</td>
</tr>
<tr>
<td>What is the day of the week?</td>
<td>0</td>
</tr>
<tr>
<td>What year is it?</td>
<td>0</td>
</tr>
<tr>
<td>What time is it right now? (within 1 hour)</td>
<td>0</td>
</tr>
</tbody>
</table>

**Orientation score**: 5 of 5

### IMMEDIATE MEMORY

The Immediate Memory component can be completed using the traditional 5-word per trial list or optionally using 10-words per trial to minimise any ceiling effect. All 3 trials must be administered irrespective of the number correct on the first trial. Administer at the rate of one word per second.

Please choose EITHER the 5 or 10 word list groups and circle the specific word list chosen for this test.

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. For 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.

<table>
<thead>
<tr>
<th>List</th>
<th>Alternate 5 word lists</th>
<th>Score (of 5)</th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Trial 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Finger Penny Blanket Lemon Insect</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Candle Paper Sugar Sandwich Wagon</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Baby Monkey Perfume Sunset Iron</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Elbow Apple Carpet Saddle Bubble</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Jacket Arrow Pepper Cotton Movie</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Dollar Honey Mirror Saddle Anchor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Immediate Memory Score**: 15 of 15

Time that last trial was completed

<table>
<thead>
<tr>
<th>List</th>
<th>Alternate 10 word lists</th>
<th>Score (of 10)</th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Trial 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Finger Penny Blanket Lemon Insect</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Baby Monkey Perfume Sunset Iron</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Elbow Apple Carpet Saddle Bubble</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Jacket Arrow Pepper Cotton Movie</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Dollar Honey Mirror Saddle Anchor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Immediate Memory Score**: 30 of 30

Time that last trial was completed

### CONCENTRATION

**DIGITS BACKWARDS**

Please circle the Digit list chosen (A, B, C, D, E, F). Administer at the rate of one digit per second reading DOWN the selected column.

*Example: If I say 7-1-9, you would say 9-1-7.*

<table>
<thead>
<tr>
<th>Concentration Number Lists (circle one)</th>
<th>List A</th>
<th>List B</th>
<th>List C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score (of 4)</td>
<td>Y N</td>
<td>Y N</td>
<td>0</td>
</tr>
<tr>
<td>4-9-3</td>
<td>5-2-6</td>
<td>1-4-2</td>
<td></td>
</tr>
<tr>
<td>6-2-9</td>
<td>4-1-5</td>
<td>6-5-8</td>
<td></td>
</tr>
<tr>
<td>3-8-1-4</td>
<td>1-7-9-5</td>
<td>6-8-3-1</td>
<td></td>
</tr>
<tr>
<td>3-2-7-9</td>
<td>4-9-6-8</td>
<td>3-4-8-1</td>
<td></td>
</tr>
<tr>
<td>6-2-9-7-1</td>
<td>4-8-5-2-7</td>
<td>4-9-1-5-3</td>
<td></td>
</tr>
<tr>
<td>1-5-2-8-6</td>
<td>6-1-8-4-3</td>
<td>6-8-2-5-1</td>
<td></td>
</tr>
<tr>
<td>7-1-8-4-6-2</td>
<td>8-3-1-9-6-4</td>
<td>3-7-6-5-1-9</td>
<td></td>
</tr>
<tr>
<td>5-3-9-1-4-8</td>
<td>7-2-4-8-5-6</td>
<td>9-2-6-5-1-4</td>
<td></td>
</tr>
</tbody>
</table>

**Digits Score**: 4 of 4

**MONTHS IN REVERSE ORDER**

Now tell me the months of the year in reverse order. Start with the last month and go backward. So you’ll say December; November; Go ahead.

<table>
<thead>
<tr>
<th>Months Score</th>
<th>0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-11-10-9-8-7-6-5-4-3-2-1-0</td>
<td></td>
</tr>
</tbody>
</table>

**Concentration Total Score (Digits + Months)**

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STEP 4: NEUROLOGICAL SCREEN

See the instruction sheet (page 7) for details of test administration and scoring of the tests.

<table>
<thead>
<tr>
<th>Test</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can the patient read aloud (e.g. symptom checklist) and follow instructions without difficulty?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Does the patient have a full range of pain-free passive cervical spine movement?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Without moving their head or neck, can the patient look side-to-side and up-and-down without double vision?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Can the patient perform the finger nose coordination test normally?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Can the patient perform tandem gait normally?</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

BALANCE EXAMINATION

Modified Balance Error Scoring System (mBESS) testing

Which foot was tested
- Left
- Right

Testing surface (hard floor, field, etc.)

Footwear (shoes, barefoot, braces, tape, etc.)

Condition | Errors
---|---
Double leg stance | of 10
Single leg stance (non-dominant foot) | of 10
Tandem stance (non-dominant foot at the back) | of 10
Total Errors | of 30

STEP 5: DELAYED RECALL:

The delayed recall should be performed after 5 minutes have elapsed since the end of the Immediate Recall section. Score 1 pt. for each correct response.

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

Please record each word correctly recalled. Total score equals number of words recalled.

Total number of words recalled accurately: or of 5 or of 10

STEP 6: DECISION

Date and time of injury:

If the athlete is known to you prior to their injury, are they different from their usual self?
- Yes
- No
- Unsure
- Not Applicable

(If different, describe why in the clinical notes section)

Concussion Diagnosed?
- Yes
- No
- Unsure
- Not Applicable

If re-testing, has the athlete improved?
- Yes
- No
- Unsure
- Not Applicable

I am a physician or licensed healthcare professional and I have personally administered or supervised the administration of this SCAT5.

Signature:
Name:
Title:
Registration number (if applicable):
Date:

SCORING ON THE SCAT5 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.
**CLINICAL NOTES:**

Name: 
DOB: 
Address: 
ID number: 
Examiner: 
Date: 

---

**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 this timeframe.

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

Other important points:

**Initial rest:** Limit physical activity to routine daily activities (avoid exercise, training, sports) and limit activities such as school, work, and screen time to a level that does not worsen symptoms.

1) Avoid alcohol
2) Avoid prescription or non-prescription drugs without medical supervision. Specifically:
   a) Avoid sleeping tablets
   b) Do not use aspirin, anti-inflammatory medication or stronger pain medications such as narcotics
3) Do not drive until cleared by a healthcare professional.
4) Return to play/sport requires clearance by a healthcare professional.

Clinic phone number: 
Patient’s name: 
Date / time of injury: 
Date / time of medical review: 
Healthcare Provider: 

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Contact details or stamp
INSTRUCTIONS

Words in Italics throughout the SCAT5 are the instructions given to the athlete by the clinician.

Symptom Scale
The time frame for symptoms should be based on the type of test being administered. At baseline it is advantageous to assess how an athlete "typically" feels whereas during the acute/post-acute stage it is best to ask how the athlete feels at the time of testing.

The symptom scale should be completed by the athlete, not by the examiner. In situations where the symptom scale is being completed after exercise, it should be done in a resting state, generally by approximating his/her resting heart rate.

For total number of symptoms, maximum possible is 22 except immediately post injury, if sleep item is omitted, which then creates a maximum of 21.

For Symptom severity score, add all scores in table, maximum possible is 22 x 6 = 132, except immediately post injury if sleep item is omitted, which then creates a maximum of 21x6=126.

Immediate Memory
The Immediate Memory component can be completed using the traditional 5-word per trial list or, optionally, using 10-words per trial. The literature suggests that the Immediate Memory has a notable ceiling effect when a 5-word list is used. In settings where this ceiling is prominent, the examiner may wish to make the task more difficult by incorporating two 5-word groups for a total of 10 words per trial. In this case, the maximum score per trial is 10 with a total trial maximum of 30.

Choose one of the word lists (either 5 or 10). Then perform 3 trials of immediate memory using this list.

Complete all 3 trials regardless of score on previous trials.

"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." The words must be read at a rate of one word per second.

Trials 2 & 3 MUST be completed regardless of score on trial 1 & 2.

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." 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.

Concentration

Digits backward
Choose one column of digits from lists A, B, C, D, E or F and administer those digits as follows:

Say: "I am 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." Begin with first 3 digit string.

If correct, circle "Y" for correct and go to next string length. If incorrect, circle "N" for the first string length and read trial 2 in the same string length. One point possible for each string length. Stop after incorrect on both trials (2 N's) in a string length. The digits should be read at the rate of one per second.

Months in reverse order
"Now tell me the months of the year in reverse order. Start with the last month and go backward. So you'll say December, November ... Go ahead" Score 1 pt. for entire sequence correct

Delayed Recall
The delayed recall should be performed after 5 minutes have elapsed since the end of the Immediate Recall section.

"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." Score 1 pt. for each correct response

Modified Balance Error Scoring System (mBESS)® testing
This balance testing is based on a modified version of the Balance Error Scoring System (BESS). A timing device is required for this testing.

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

OPTION: 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).

Balance testing – types of errors
1. Hands lifted off iliac crest
2. Opening eyes
3. Step, stumble, or fall
4. Moving hip into < 30 degrees abduction
5. Lifting foot or heel
6. Remaining out of test position > 5 sec

"I am now going to test your balance. Please take your shoes off (if applicable), roll up your pant legs above ankle (if applicable), and remove any ankle taping (if applicable). This test will consist of three twenty second tests with different stances."

(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 that position for 20 seconds. I will be counting the number of times you move out of this position. I will start timing when you are set and have closed your eyes."

(b) Single leg stance:

"If you were to kick a ball, which foot would you use? [This will be the dominant foot] Now 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. Again, you should try to maintain stability for 20 seconds with your hands on your hips and your eyes closed. I will be counting the number of times you move out of this position. If you stumble out of this position, open your eyes and return to the start position as continue balancing. I will start timing when you are set and have closed your eyes."

(c) Tandem stance:

"Now stand heel-to-toe with your non-dominant foot in back. Your weight should be evenly distributed across both feet. Again, you should try to maintain stability for 20 seconds with your hands on your hips and your eyes closed. I will be counting the number of times you move out of this position. If you stumble out of this position, open your eyes and return to the start position and continue balancing. I will start timing when you are set and have closed your eyes."

Tandem Gait
Participants are instructed to stand with their feet together behind a starting line (the test is best done with footwear removed). Then, they walk in a forward direction as quickly and as accurately as possible along a 38mm wide (sports tape), 3 metre line with an alternate foot heel-to-toe gait ensuring that they approximate their heel and toes on each step. Once they cross the end of the 3m line, they turn 180 degrees and return to the starting point using the same gait. Athletes fail the test if they step off the line, have a separation between their heel and toe, or if they touch or grab the examiner or an object.

Finger to Nose
"I am going to test your coordination now. Please sit comfortably on the chair with your eyes open and your arm (either right or left) outstretched (shoulder flexed to 90 degrees and elbow and fingers extended), pointing in front of you. When I give a start signal, I would like you to perform five successive finger to nose repetitions using your index finger to touch the tip of the nose, and then return to the starting position, as quickly and as accurately as possible."

References
CONCUSSION INFORMATION

Any athlete suspected of having a concussion should be removed from play and 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 experience:

- Worsening headache
- Drowsiness or inability to be awakened
- Inability to recognize people or places
- Repeated vomiting
- Unusual behaviour or confusion or irritable
- Seizures (arms and legs jerk uncontrollably)
- Weakness or numbness in arms or legs
- Unsteadiness on their feet.
- Slurred speech
- Seizures (arms and legs jerk uncontrollably)

Consult your physician or licensed healthcare professional after a suspected concussion. Remember, it is better to be safe.

Rest & Rehabilitation

After a concussion, the athlete should have physical rest and relative cognitive rest for a few days to allow their symptoms to improve. In most cases, after no more than a few days of rest, the athlete should gradually increase their daily activity level as long as their symptoms do not worsen. Once the athlete is able to complete their usual daily activities without concussion-related symptoms, the second step of the return to play/sport progression can be started. The athlete should not return to play/sport until their concussion-related symptoms have resolved and the athlete has successfully returned to full school/learning activities.

When returning to play/sport, the athlete should follow a stepwise, medically managed exercise progression, with increasing amounts of exercise. For example:

Graduated Return to Sport Strategy

<table>
<thead>
<tr>
<th>Exercise step</th>
<th>Functional exercise at each step</th>
<th>Goal of each step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Symptom-limited activity</td>
<td>Daily activities that do not provoke symptoms.</td>
<td>Gradual reintroduction of work/school activities.</td>
</tr>
<tr>
<td>2. Light aerobic exercise</td>
<td>Walking or stationary cycling at slow to medium pace. No resistance training.</td>
<td>Increase heart rate.</td>
</tr>
<tr>
<td>4. Non-contact training drills</td>
<td>Harder training drills, e.g., passing drills. May start progressive resistance training.</td>
<td>Exercise, coordination, and increased thinking.</td>
</tr>
<tr>
<td>5. Full contact practice</td>
<td>Following medical clearance, participate in normal training activities.</td>
<td>Restore confidence and assess functional skills by coaching staff.</td>
</tr>
<tr>
<td>6. Return to play/sport</td>
<td>Normal game play.</td>
<td></td>
</tr>
</tbody>
</table>

In this example, it would be typical to have 24 hours (or longer) for each step of the progression. If any symptoms worsen while exercising, the athlete should go back to the previous step. Resistance training should be added only in the later stages (Stage 3 or 4 at the earliest).

Written clearance should be provided by a healthcare professional before return to play/sport as directed by local laws and regulations.

Graduated Return to School Strategy

Concussion may affect the ability to learn at school. The athlete may need to miss a few days of school after a concussion. When going back to school, some athletes may need to go back gradually and may need to have some changes made to their schedule so that concussion symptoms do not get worse. If a particular activity makes symptoms worse, then the athlete should stop that activity and rest until symptoms get better. To make sure that the athlete can get back to school without problems, it is important that the healthcare provider, parents, caregivers and teachers talk to each other so that everyone knows what the plan is for the athlete to go back to school.

Note: If mental activity does not cause any symptoms, the athlete may be able to skip step 2 and return to school part-time before doing school activities at home first.

<table>
<thead>
<tr>
<th>Mental Activity</th>
<th>Activity at each step</th>
<th>Goal of each step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Daily activities</td>
<td>Typical activities that do not give the athlete symptoms</td>
<td>Gradual return to typical activities.</td>
</tr>
<tr>
<td>2. School activities</td>
<td>Homework, reading or other cognitive activities outside of the classroom.</td>
<td>Increase tolerance to cognitive work.</td>
</tr>
<tr>
<td>3. Return to school part-time</td>
<td>Gradual introduction of school work. May need to start with a partial school day or with increased breaks during the day.</td>
<td>Increase academic activities.</td>
</tr>
<tr>
<td>4. Return to school full-time</td>
<td>Gradually progress school activities until a full day can be tolerated.</td>
<td>Return to full academic activities and catch up on missed work.</td>
</tr>
</tbody>
</table>

If the athlete continues to have symptoms with mental activity, some other accommodations that can help with return to school may include:

- Starting school later, only going for half days, or going only to certain classes
- More time to finish assignments/tests
- Quiet room to finish assignments/tests
- Not going to noisy areas like the cafeteria, assembly halls, sporting events, music class, shop class, etc.
- Taking lots of breaks during class, homework, tests
- No more than one exam/day
- Shorter assignments
- Repetition/memory cues
- Use of a student helper/tutor
- Reassurance from teachers that the child will be supported while getting better

The athlete should not go back to sports until they are back to school/learning, without symptoms getting significantly worse and no longer needing any changes to their schedule.
Sport concussion assessment tool - 5th edition

Br J Sports Med published online April 26, 2017

Updated information and services can be found at:
http://bjsm.bmj.com/content/early/2017/04/26/bjsports-2017-097506S
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Appendix C

(mBESS Score Sheet)
Modified Balance Error Scoring System (mBESS) testing  Date:_____/_____/____

Athlete Name________________________  Sport(s)_________________________

Which foot was tested  (i.e. which is the non-dominant foot)  ☐ Right  ☐ Left

Testing Surface (hard floor, field, etc.___________________________________________________

Footwear (shoes, barefoot, braces, tape, etc.)____________________________________________

<table>
<thead>
<tr>
<th>Condition</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double leg stance</td>
<td>of 10</td>
</tr>
<tr>
<td>Single leg stance (non-dominant)</td>
<td>of 10</td>
</tr>
<tr>
<td>Tandem stance (non-dominant foot at the back)</td>
<td>of 10</td>
</tr>
<tr>
<td><strong>Total Errors</strong></td>
<td>of 30</td>
</tr>
</tbody>
</table>

ATC/ATS Initials:________

---

Modified Balance Error Scoring System (mBESS) testing  Date:_____/_____/____

Athlete Name________________________  Sport(s)_________________________

Which foot was tested  (i.e. which is the non-dominant foot)  ☐ Right  ☐ Left

Testing Surface (hard floor, field, etc.___________________________________________________

Footwear (shoes, barefoot, braces, tape, etc.)____________________________________________

<table>
<thead>
<tr>
<th>Condition</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double leg stance</td>
<td>of 10</td>
</tr>
<tr>
<td>Single leg stance (non-dominant)</td>
<td>of 10</td>
</tr>
<tr>
<td>Tandem stance (non-dominant foot at the back)</td>
<td>of 10</td>
</tr>
<tr>
<td><strong>Total Errors</strong></td>
<td>of 30</td>
</tr>
</tbody>
</table>

ATC/ATS Initials:________
mBESS Error Scoring

Non-dominant foot is the one you’d prefer not to kick a ball with.

20 sec trials for each position

Errors include:
- Moving hands off of hips
- Opening eyes
- A step/stumble or fall
- Abduction or flexion of the hip beyond 30°
- Lifting forefoot or heel off testing surface
- Remaining out of the proper testing position for >5 s

Each item counts as an error unless multiple errors occur at the same time, then only count as 1
Appendix D

(Patient Home Care Plan)
You have been diagnosed with a concussion (also known as a mild traumatic brain injury) and need to be watched closely for 24-48 hours.

**REST IS THE KEY.** You should **NOT** participate in any activities (i.e. sports, physical education, bike riding, weight training) that increase your heart rate or blood pressure above resting values if you still have symptoms. Your concussion management care plan is based on your symptoms and is designed to help speed your recovery. It is important to limit activities that require heavy concentration or long periods of attention. Once your symptoms have resolved and your concentration has returned to normal, you can slowly increase your daily activity load and duration of those activities.

<table>
<thead>
<tr>
<th>Today the following symptoms are present:</th>
<th>_______ no symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td><strong>Thinking</strong></td>
</tr>
<tr>
<td>Headaches</td>
<td>Sensitivity to light/noise</td>
</tr>
<tr>
<td>Nausea</td>
<td>Neck Pain</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Numbness/tingling</td>
</tr>
<tr>
<td>Visual problems</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Balance problems</td>
<td>Dizziness</td>
</tr>
</tbody>
</table>

**Go to the Emergency Room if you suddenly experience any of the following:**

| Headache that worsens | Look very drowsy, can’t be woken | Can’t recognize people or places | Unusual behavior change |
| Seizures | Repeated vomiting | Increased confusion | Increased irritability/aggression |
| Neck pain that worsens | Slurred speech | Weakness or numbness in arms/legs | Loss of consciousness |
| Dilated or Unequal pupils | Blurred/change in vision | Stumbling/loss of balance | Decrease in level of consciousness |

Do not use prescription medications unless specifically directed to do so by the athletic training staff or team physician.
<table>
<thead>
<tr>
<th>It is OK to:</th>
<th>There is no need to:</th>
<th>DO NOT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Tylenol (acetaminophen)</td>
<td>Check eyes with a light</td>
<td>DRINK ALCOHOL</td>
</tr>
<tr>
<td>Use an ice pack on neck/head for comfort</td>
<td>Wake up every hour</td>
<td>Eat spicy foods</td>
</tr>
<tr>
<td>Go to sleep</td>
<td>Stay in bed</td>
<td>Drive a car</td>
</tr>
</tbody>
</table>

You should follow the directions on this sheet and contact your athletic trainer if you have questions. If the athletic trainer is not available, call the emergency room immediately.

<table>
<thead>
<tr>
<th>Athletic Trainer</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luther College Health Services</td>
<td>Phone (563) 387-1045</td>
</tr>
<tr>
<td>Winneshiek Medical Center Emergency Room</td>
<td>Phone (563) 382-2911</td>
</tr>
<tr>
<td>Luther College Campus Security</td>
<td>Phone (563) 387-2111</td>
</tr>
</tbody>
</table>

**Returning to Daily Activities**

1. Stay on your regular sleep schedule, as much as possible. However, rest/nap as you feel necessary. Be sure to get enough sleep at night—no late nights. Keep the same bedtime all week.

2. Limit physical activities and activities that require heavy concentration or thinking that make symptoms worse. During recovery, it is normal to feel frustrated and sad when you do not feel right or cannot participate.

   ● Avoid physical activities such as: Skills class, sports practice, weight training, running, biking, swimming until further notice
   
   ● Limit activities requiring concentration/use of electronic devices such as: Movies, video games, email, music, reading

3. Eat regularly. Drink lots of fluids and eat carbohydrates or protein to maintain appropriate blood sugar levels. Avoid spicy foods and eat a healthy, well-balanced diet.

4. As symptoms decrease, you may increase and lengthen daily activities as directed by your athletic trainer. If symptoms worsen or return, lessen your activity. Repeated evaluation of your symptoms is required to help guide recovery, consult with your athletic trainer for daily appointments.

5. If you are still having symptoms of concussion you may need extra help in completing academic work. As your symptoms subside the extra help will be removed gradually. Inform your professors and work study supervisors of your injury. Your athletic trainer will contact Susan Halverson in the student life office at 563-387-1020 for assistance with this process.
**Returning to Sports**

You should never return to play until directed to do so by the athletic training staff and team physician.

If your symptoms should return during the return to play protocol, stop activity and report immediately to your athletic trainer.

As with any injury, a full recovery will reduce the chances of sustaining another injury. Follow the team physician and/or athletic trainer’s recommendations.

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**The following are recommended at this time:**

___ No physical activity including sports practices and lifting sessions at this time.

*Next Follow Up Date and Time:* __________________________

___ Gradual return to sports practices under the supervision of an athletic trainer, following clearance from a physician.

- Return to play should occur in gradual steps beginning with light activity and progressing to full contact game type situations.
- Pay careful attention to your symptoms and concentration abilities at each stage of activity.

If symptoms return, inform your athletic trainer in order to reevaluate your return to play activity level.