Sports Concussion Management Plan
A. Sport Concussion Management Plan

Albemarle County Public Schools (ACPS) recognizes that a concussion, as defined by the 2017 Concussion in Sport Group consensus statement, is a traumatic brain injury induced by biomechanical forces and with features clinically defined as:

- 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;
- typically results in a rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours;
- may result in neuropathological changes, but the acute signs and symptoms large reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies;
- results in a variety of clinical signs and symptoms that may or may not involve the loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.
- results in signs and symptoms that cannot be explained by drug, alcohol, or medication use, other injuries (such as a neck injury) or other pre-existing or accompanying factors (e.g. psychological factors or other medical conditions).1

The majority of young student-athletes who are diagnosed with concussions and allowed proper recovery time, will feel fully recovered within 10-14 days. However, the effects of repeated concussions may be cumulative, particularly if occurring close together. Of particular concern is if a student-athlete sustains a second concussion before the effects of previous injury have resolved. In this case the consequences could be very severe and even result in significant injury or rarely even death (Second Impact Syndrome). To ensure the proper diagnosis and care for concussions among student-athletes, ACPS has developed this comprehensive concussion management plan.

ACPS is committed to safe practice and provides a Sports Concussion Management Plan to ensure that (i) on an annual basis, coaches, athletic directors, administrators, volunteers, student-athletes, and their parents are educated about the short-and long-term effects of concussions; (ii) student-athletes suspected of having concussions will be removed from play immediately and referred appropriately; (iii) school personnel will be alert to cognitive and academic issues that may be experienced by a student who has suffered a concussion or other head injury; (iv) school personnel will accommodate the recovering student’s gradual return to full participation in academic activities based on the recommendations of the student’s certified athletic trainer or other licensed health care provider; (v) student-athletes who have sustained concussions are returned to play only after receiving appropriate medical care, adequate time to heal, and demonstrating no symptoms directly related to the concussion.

In accordance with Senate Bill 652, ACPS guidelines mandate that if a student-athlete exhibits or reports any sign or symptom of a concussion, he/she will be removed from practice or play. Parents are notified on the day of the injury. The parents will obtain a proper medical evaluation by a licensed health care professional (physician, physician assistant, osteopath, certified athletic trainer, neuropsychologist or nurse practitioner) with training in concussion evaluation and management per the ACPS Sports Concussion Management Plan. ACPS acknowledges that clearance to return to
play is a medical decision. The student-athlete must work with the school’s designated return to learn specialist (e.g., guidance counselor, school nurse, teacher liaison) and certified athletic trainer to follow the Gradual Return to Learn (Appendix II) and Return to Sports Participation protocol (Appendix III) of this document. ACPS will not allow the student-athlete to participate in a practice or game while experiencing any lingering or persisting symptoms of a concussion. The student-athlete must be symptom free at rest, during physical and mental exertion, with neurocognitive functioning and postural stability that has returned to baseline, as determined by the results from the Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT), Balance Error Scoring System (BESS), and Graded Concussion Symptom Checklist prior to return to full sports competition. A student who has been diagnosed with a concussion may concurrently restart gradual return to learn and return to light physical activity, but will not return to full sports competition until fully back to academics.

B. Definitions

Concussion: a concussion is a traumatic brain injury induced by biomechanical forces. A 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;
- typically results in a rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours;
- may result in neuropathological changes, but the acute signs and symptoms large reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies;
- results in a variety of clinical signs and symptoms that may or may not involve the loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged;
- results in signs and symptoms that cannot be explained by drug, alcohol, or medication use, other injuries (such as a neck injury) or other pre-existing or accompanying factors (e.g. psychological factors or other medical conditions).1

Second Impact Syndrome: A poorly understood condition that can occur when a second concussion is sustained before a first concussion has properly healed. This results in rapid and severe brain swelling and often has catastrophic results. (CDC)

Licensed Health Care Professional: A physician, physician assistant, osteopath, or certified athletic trainer licensed by the Virginia Board of Medicine; a neuropsychologist licensed by the Board of Psychology; or a nurse practitioner licensed by the Virginia Board of Nursing. (BOE)

C. Education

ACPS will require that school nurses, coaches, athletic trainers, and licensed health care provider volunteers receive current training annually on the following:
- Recognizing the signs and symptoms of a concussion
- Strategies to reduce the risks of concussions
- How to seek proper medical treatment for a student-athlete suspected of having a concussion
- When and how the student should return to academic activities (strategies for academic accommodations if needed)
- When and how a student-athlete may safely return to physical activities
1. Parents/Guardians
   a. In order to participate in any extracurricular athletic activity, ACPS will require student-athletes and their parents/guardians to review information on concussions on an annual basis (every 12 months). This information will include a parent and student-athlete fact sheet along with instructions to watch a concussion video provided on the school’s athletic website. After having reviewed the materials, each student-athlete and the student-athlete’s parent or guardian shall sign a statement acknowledging receipt, review, and understanding of such information. (Appendix I)
   b. By signing this form, the student-athlete and the student-athlete’s parent or guardian will accept the responsibility for reporting injuries and illnesses, including signs and symptoms of a concussion, to the coaching staff, school nurse, and school athletic trainer.
   c. In order to participate in any extracurricular athletic activity listed in Table 1 below, ACPS will require the student-athlete to take a baseline neurocognitive test (ImPACT) and postural stability testing (BESS) within 10 days of team selection. Any student who participates in a sport not listed in Table 1 may opt to take the ImPACT test and BESS test (Appendix V).

<table>
<thead>
<tr>
<th>Table 1 – Sports with High-Risk for Concussions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseball</td>
</tr>
<tr>
<td>Basketball</td>
</tr>
<tr>
<td>Cheerleading</td>
</tr>
<tr>
<td>Color Guard</td>
</tr>
<tr>
<td>Diving</td>
</tr>
<tr>
<td>Field Events (shot put, discus, high jump, triple jump, long jump, pole vault)</td>
</tr>
<tr>
<td>Field Hockey</td>
</tr>
<tr>
<td>Football</td>
</tr>
<tr>
<td>Lacrosse</td>
</tr>
<tr>
<td>Soccer</td>
</tr>
<tr>
<td>Softball</td>
</tr>
<tr>
<td>Swimming</td>
</tr>
<tr>
<td>Volleyball</td>
</tr>
<tr>
<td>Wrestling</td>
</tr>
</tbody>
</table>

2. Coaches
   a. All coaches will be required to complete the online Concussion in Sports course provided by the National Federation of High Schools. This course is to be completed on an annual basis by head and assistant coaches within the first week of practice of their respective sport. Information including signs and symptoms of concussions, effects of a concussion on the student-athlete, ACPS Sports Concussion Management Plan, and return to activity protocol for their respective sport will be included in each coach’s handbook.

3. Administrators and Faculty
a. Appropriate ACPS faculty and staff will be required to review annually signs and symptoms associated with concussions, effects of a concussion on a student-athlete’s cognitive and academic performance (Appendix II), and ACPS Sports Concussion Management Plan.

4. Volunteers
   a. All volunteers will be required to annually review ACPS Sports Concussion Management Plan, School Board Policy, and CDC Heads Up: Concussion in High School Sports.

5. ATC
   a. ACPS ATCs will be required to annually review ACPS Sports Concussion Management Plan and School Board Policy. Each ATC will also annually complete a one hour in-service on sports concussion evaluation and management. The ATC is responsible for maintaining current knowledge of concussion assessment and management.

6. Team Physicians
   a. Team physicians will be required to annually review ACPS Concussion Management Plan. Physicians must be able to certify he/she is aware of the current medical guidance on concussion evaluation and management. Appropriate evidence includes recent continuing education specific to sport concussion management and evaluation.

D. ACPS Management of a Concussion
1. Each student-athlete’s reaction to a concussion will be different, therefore, each student-athlete should be treated with individual care. The following situations indicate a medical emergency and require activation of the Emergency Medical System:
   ● Any athlete who has symptoms of a concussion and who is not stable (condition is worsening).
   ● Any athlete who exhibits any of the following “red flags” (signs or symptoms):
     o Decreasing level of consciousness
     o Increasing confusion
     o Increasing irritability
     o Weakness or numbness in the arms or legs
     o Eye pupils becoming unequal in size
     o Repeated vomiting
     o Seizures
     o Slurred speech or inability to speak
     o Inability to recognize people or places
     o Worsening confusion
     o Severe or rapidly worsening headache
     o Persisting double vision
     o Severe neck pain

The following are symptoms associated with a concussion, but are NOT red flags indicating an emergency:
   o Headache
   o Nausea
   o Dizziness
   o Blurred vision
   o Feeling eye strain
   o Balance problems
   o Sensitivity to light
   o Sensitivity to noise
   o Feeling slowed down
   o Feeling like “in a fog”
   o Difficulty concentrating
   o Difficulty remembering
Fatigue or low energy  o  Sadness
Confusion o  Nervous or Anxious
Drowsiness o  Trouble falling asleep
More emotional o  Needing more sleep
Irritability

2. When a student-athlete sustains a concussion, or is suspected by the athletic trainer, coach or school nurse of having a concussion, the management plan below will be followed.
   a. Evaluation by a Certified Athletic Trainer (ATC) with SCAT 5 (Sideline Concussion Assessment Tool) at the time of the injury.
   b. If an ATC is not available, the coach will remove the student-athlete from the game or practice. The coach will contact the parent/guardian and refer the student-athlete to a physician who can certify that he or she is current on medical guidance of concussion evaluation and management. The coach will also notify the ATC of the situation.
   c. The student-athlete MUST be evaluated by a Licensed Healthcare Professional who can certify that he/she is aware of the current medical guidance on concussion evaluation and management before returning to play.
   d. All student-athletes seen by a physician must bring written documentation of medical clearance from the physician to the ATC, releasing them to the care of the ATC prior to starting the Gradual Return to Sports Participation Program (Appendix III).
   e. The student-athlete must have a 24-48 hour rest period after a concussion is sustained, after which an athlete may begin a gradual return to learn and gradual return to sport. Once an athlete has successfully begun a gradual return to academics, a step-wise return to sport progression can be initiated.
   f. All student-athletes must follow a Gradual Return to Sports Participation Program prior to returning to full participation (Appendix III).
   g. If the student-athlete develops a significant increase in concussion-related signs or symptoms during the Gradual Return to Learn/ Return to Play Participation Program, he or she should return to the previous level of academic and physical activity. If this pattern of intolerance to progression continues still 2-3 weeks post-injury, the student should be re-evaluated by a health care professional with specialty training in concussion diagnosis and management (i.e. neurologist, neuropsychologist, or physical therapist.)

E. Guidelines for coaches and/or other related school personnel
   1. If the ATC is not available at the time of suspected head injury, the coach is responsible for removing the student-athlete from the field of play and notifying the ATC of the suspected injury. Any athlete with a suspected concussion should not return to play that day nor until,
      a. Evaluated by an appropriate licensed health care provider as determined by the ACPS concussion management team
      b. Written clearance has been received from such licensed health care provider.
   2. In the absence of an ATC the coach will have access to the Sport Concussion Assessment Tool (SCAT5) (Appendix IV) for sideline evaluation of a suspected concussion. The coach should notify and report all signs and symptoms of the injury, as well as all knowledge of the mechanism of injury to the ATC.
3. If an athlete requires immediate referral to higher level of care (refer to “red flags” above), EMS should be activated (refer to the Incident Action Plan for specific field details), parent/guardian should be contacted, and the designated coach should accompany the athlete to the hospital.  
4. If immediate referral is not suggested (refer to ACPS Management of a Concussion) the coach is responsible for notifying the parent/guardian of the injury.  
5. The parent/guardian should provide transportation home and the student-athlete should not be allowed to drive home.  
6. If a parent/guardian cannot be reached, the coach should ensure the athlete is in the care of a responsible adult who is capable of monitoring the athlete and understands the home instructions. Efforts to contact the parent/guardian should continue.

F. Guidelines for the ATC  
1. The ATC should assess the injury using the SCAT 5 (see Appendix IV) and follow appropriate guidelines for referral.  
2. The ATC will notify the student-athlete’s parent/guardian and provide at home care instructions.  
3. The parent/guardian should provide transportation home and the student-athlete should not be allowed to drive home.  
4. If a parent/guardian cannot be reached, the ATC should ensure the athlete is in the care of a responsible adult who is capable of monitoring the athlete and understand the home instructions. Efforts to contact the parent/guardian should continue.  
5. The ATC should notify appropriate school personnel of the athlete’s condition, including but not limited to the athlete’s coaches and school nurse.  
6. Appropriate documentation of the athletes’ injury should be maintained by the ATC.  
7. The ATC will administer computerized neurocognitive testing (ImPACT) when the athlete reports being symptom free as a means for monitoring safe progression of return to play. The ATC will also perform a post-injury BESS assessment and Graded Concussion Symptom Checklist when the athlete reports being symptom free. It is expected all student-athletes return to baseline on these measures prior to return to full practice and competition. They should begin light physical activity under the direction of the ATC, however, prior to being asymptomatic consistent with active recovery protocols ( Appendix III).  
8. The ATC will consult with appropriate medical personnel if post-injury testing does not return to expected baseline results.  
   o The ATC will provide SCAT 5 assessment, ImPACT baseline and post-injury assessment, BESS baseline and post-injury assessment, and Graded Concussion Symptom Checklist to appropriate medical personnel upon referral.  
9. Upon receipt of appropriate medical clearance, the ATC will determine when the student-athlete may return to full physical activity based on successful completion of the sport specific progression program (see Appendix III). If an ATC suspects an athlete has not fully recovered despite being medically cleared by another health care provider, he/she may prevent an athlete from returning to play.

G. Guidelines for School Nurse  
1. In the event that an athlete presents to the nurse with signs and/or symptoms of a concussion the nurse should assess the injury and determine if a medical emergency is present as described in ACPS Management of a Concussion.  
2. If no immediate referral is indicated, the school nurse should contact the ATC and release the student athlete to his/her care.
3. Transfer of care will be documented by a release of care form signed by both the school nurse and ATC (Appendix V).
4. The nurse will notify the student-athlete’s parent/guardian and provide at home care instructions.
5. If a parent/guardian cannot be reached, the nurse must ensure the athlete is in the care of a responsible adult who is capable of monitoring the athlete and understanding home instructions. Efforts to contact the parent/guardian should continue.
Appendix I

Concussion Information for Parents and Guardians

What is a concussion?
A concussion is a brain injury which results in a temporary disruption of normal brain function. A concussion can be caused by a bump, blow, or jolt to the head or body. Even what seems to be a mild bump to the head can be serious. A student-athlete does not have to lose consciousness to suffer a concussion. A concussion may cause multiple symptoms. Many symptoms appear immediately following the injury, while others may develop over the next several days or weeks. The symptoms may be subtle and are often difficult to fully recognize.

Signs and Symptoms of a Concussion

<table>
<thead>
<tr>
<th>Physical</th>
<th>Cognitive</th>
<th>Emotional</th>
<th>Sleep Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>Blurry or double vision</td>
<td>Feeling mentally “foggy”</td>
<td>Sadness</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>Fatigue</td>
<td>Feeling slowed down</td>
<td>Nervousness</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Sensitivity to light</td>
<td>Difficulty remembering</td>
<td>Irritability</td>
</tr>
<tr>
<td>Instability/off balance</td>
<td>Numbness/tingling of extremities</td>
<td>Difficulty concentrating</td>
<td>More emotional</td>
</tr>
</tbody>
</table>

Q: What should I do in the first 24-36 hours?
A: Below are instructions for monitoring and caring for a child with a concussion:
- Your student-athlete should not be left alone. Consider: Your child may feel tired, headachy, dizzy, nauseated, and just not well for the first day or so. It is important that a responsible adult be easily available in case extra help and support is needed. Either remain close by or readily accessible by phone/text. The first night after injury, check on your child once or twice. Sleep is important for recovery and you do NOT need to wake him/her up during the night unless you are concerned about the way she/he is breathing.
- Your student-athlete should not drive while still having significant concussion symptoms.
- It is OK to use an ice pack on the head and neck for comfort. It also is OK to use Tylenol to help with pain control. Avoid ibuprofen or Aleve for the first 24 hours, but those are OK to use after the first 24 hours. Children and adolescents should not take aspirin containing products, including Excedrin, without consulting a physician.
- Create an environment free of excessive noise (e.g. loud music or televisions) that may worsen the student-athlete’s symptoms.
- Ensure the injured student-athlete eats a normal healthy diet during recovery.

Q: When should I take my child to the doctor?
A: All student-athletes who sustain a concussion need to be evaluated by a licensed health care professional who is familiar with sports concussion diagnosis and management. You should call their physician and explain what has happened. A follow-up appointment should be scheduled with the primary care doctor or a sports concussion specialist if directed.

If any signs or symptoms significantly worsen (“red flags”), especially if they worsen quickly, then proceed IMMEDIATELY to the nearest emergency medical facility. Additional symptoms to watch for that would require IMMEDIATE MEDICAL ATTENTION includes:
- Decreasing level of consciousness
- Increasing confusion
- Increasing irritability
- Weakness or numbness in the arms or legs
- Eye pupils becoming unequal in size
- Repeated vomiting
- Seizures
- Slurred speech or inability to speak
- Inability to recognize people or places
- Severe or rapidly worsening headache
- Persisting double vision
- Severe neck pain
- Worsening confusion

Q: How can a concussion affect school work?
A: Following a concussion, many student-athletes will have some temporary difficulty in school. These problems may last for days or a few weeks and often include difficulties with short- and long-term memory, concentration, and organization.

In many cases it is best to lessen the student-athlete’s class load early on after the injury. This may include staying home from school for a few days then a lightened schedule for a few additional days. It is possible that a longer period of time may be needed. Decreasing the cognitive and emotional stress on the brain early on after a concussion is important and may lessen symptoms and shorten recovery time. It is important, however, not to keep students out of school for an extended period of time. See Appendix II for specific academic accommodations. In general, RETURN TO LEARN happens before RETURN TO PHYSICAL ACTIVITY.

Q: When can a student-athlete return to play following a concussion?
A: NO student-athlete should return to play or practice on that same day as the injury. Studies have shown that a young brain does not recover quickly enough for a student-athlete to return to activity in such a short time. Your student-athlete should not participate in any high-risk activities that could lead to head injury. This includes physical education class, recess, and riding a bike or skateboard until cleared to do so by a licensed health care professional.

Once the student-athlete has had a 24-48 hour rest period after a concussion is sustained, the student-athlete may gradually re-integrate into symptom limited daily activities and progress in an academic return progression. Once an athlete has successfully initiated a return to academics they should also begin a gradual return to physical activity (See Gradual Return to Sports Participation-Appendix III).

Q: Why is it so important that a student-athlete not return to play until they have completely recovered from a concussion?
A: A second concussion that occurs before the brain recovers from the first can slow recovery or increase the chances of long-term problems. In rare cases of 2 injuries occurring within a very short period of time (24-48 hours), brain swelling can result, leading to permanent brain damage or even death. This is known as second impact syndrome. This rare but severe possibility is why no student-athlete is allowed to return to play on the day of injury.
Q: What is the best treatment to help my student-athlete recover more quickly from concussion?
A: The best immediate treatment for a concussion is rest, both physically and mentally. There are no medications that can speed the recovery from a concussion. After the initial rest period, a symptom-limited gradual return to daily activities is important (“active recovery”). Exposure to loud noises, bright lights, chaotic environments, and/or stressful situations may worsen the symptoms of a concussion. As the symptoms decrease, exposure to more typical environments and activities may be gradually re-introduced.

Q: How long do the symptoms of a concussion typically last?
A: The symptoms of a concussion will usually start to go away within 10 to 14 days of the initial injury. In some cases, symptoms may last for several weeks. Students with pre-existing headaches/migraines, ADHD, anxiety, depression, sleep problems may see a particular increase in these symptoms and they may linger longer than for someone who does not have those conditions at baseline.

Q: Is a CT scan or MRI needed to diagnose a concussion?
A: Diagnostic testing, including CT and MRI scans are rarely needed following a concussion. While these are helpful in identifying life-threatening brain injuries, like bleeding in the brain, a concussion does not “show up” on standard CT or MRI. Concussions are diagnosed based on the student-athlete’s description of the injury or event and the licensed healthcare provider’s physical examination.

Q: When should the student-athlete see a sports concussion specialist?
A: Any student-athlete who has had significant or recurrent head injuries or whose symptoms persist beyond 10-14 days may benefit from an evaluation completed by a pediatric sports concussion specialist. Your child’s physician may also recommend a specialty evaluation if he/she has any concerns or need further assistance with the student-athlete’s concussion management. A student-athlete with persistent symptoms may benefit from continued care by a physical therapist trained in concussion treatment. Neuropsychological testing, can be helpful to assist with return to academic and physical activity in the event of a prolonged recovery (2010 AAP Sport-Related Concussion in Children and Adolescents).

*Some of this information has been adapted from the CDC’s “Head’s Up: Concussion in High School Sports” and the NFHS’s Sports Medicine Advisory Committee. Please go to www.cdc.gov for more information.

_____________________________________________________________________________________
Please cut along this line and return bottom portion to your child’s coach.

I, ____________________________ parent/guardian of, ________________________________ have received, reviewed, and understand the information on concussions. I agree to work in coordination with the coaches, teachers, certified Athletic Trainers, and administrators of Albemarle County Public Schools in order to provide a safe environment for my child as well as all athletes at the school.

_________________________________________________  ___________________
Signature of Parent/Guardian       Date
Printed Name of Parent/Guardian

Printed Name of Student-Athlete
Appendix II

Academic Accommodations and Classroom Behavioral Changes

Accommodations

- Information Processing
  - Increased time to complete assignments
  - Breakdown complex directions
  - Decrease length of assignments
  - Teacher/peer notes if and when possible
  - Priority seating to optimize processing

- Memory Deficits
  - Written and verbal instructions
  - Posted schedule and directions
  - Frequent review of information

- Attention Deficits
  - Visual prompts
  - Frequent breaks
  - Preferential seating

- Organizational Skills
  - Study guide and/or timeline of information
  - Provision of color coded materials
  - Daily calendar for assignments and tasks
  - Meeting with a resource teacher to review study plan (if available)

- Lighting
  - Dim lights if photo sensitive
  - Limit screen time (computers, projections, “smart boards”)
  - Allow student to wear visor or sunglasses

- Fatigue
  - Shortened school day
  - Rest periods during school day

Classroom Behavioral Changes

- Poor attention and concentration
- Irritability and low frustration tolerance
- Differences in following directions and/or answering questions
- Reduced short term memory recall
- Delayed processing
- Easily distracted
- Inability to follow through with routing assignments
- Disproportional reaction to situations
- Repeating themselves
- Sensitivity to light and/or noise
## Appendix II

**ACPS Concussion Return to Learn Guidelines**

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>Black (Recovery Stage 1)</th>
<th>Red (Recovery Stage 2)</th>
<th>Orange (Recovery Stage 3)</th>
<th>Yellow (Recovery Stage 4)</th>
<th>Green (Recovery Stage 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student reports constant symptoms that interfere with activities of daily living</td>
<td>Student reports symptoms are not yet fully controlled with activity modification</td>
<td>Student reports that he/she has minimal symptoms and student can do academic work without symptom-exacerbation for at least 20-30 minutes</td>
<td>Student can control symptoms with activity modification and student can sit through a full class without symptom exacerbation while being mentally engaged</td>
<td>Student is symptom-free for a full day of school without accommodations and passes ImPACT Test or deemed clinically recovered by ATC</td>
<td></td>
</tr>
</tbody>
</table>

### TEACHER EXPECTATIONS & RECOMMENDATIONS
- No school attendance
- No homework or make-up completed
- No communication to teachers expected from student

### PARENT RECOMMENDATIONS
- Rest at home as much as possible (example: computers, TV, iPad, video game, phones)
- No homework
- Maintain contact in some way with peers

### Black (Recovery Stage 1)
- Rest at home
- Activities are based on symptom level
- Can do short walks, stretching, yoga as tolerated
- If symptom-free, can begin trying academics at 10-20 minute intervals
- Try short “field trips” outside the home such as to the store, to help assess/prepare for readiness to return to school environment

### Red (Recovery Stage 2)
- Rest at home
- Activities are based on symptom level
- Can do short walks, stretching, yoga as tolerated
- If symptom-free, can begin trying academics at 10-20 minute intervals
- Try short “field trips” outside the home such as to the store, to help assess/prepare for readiness to return to school environment

### Orange (Recovery Stage 3)
- Student can begin partial school days with accommodations*
- Student may need to complete classwork in shortened intervals while in class*
- Amount of class periods and interval lengths will be specified by ATC

### Yellow (Recovery Stage 4)
- Student can complete full school days with few accommodations
- Homework & classwork is expected to be attempted, but will be completed on an “as-tolerated” basis
- Student is allowed to leave the classroom for 10 minutes if symptoms occur

### Green (Recovery Stage 5)
- Student can complete full school days without accommodations
- Student is expected to be fully engaged
- Homework is expected to be completed
- Make-up work and projects will be completed with reasonable due dates
- Quizzes and tests allowed
- Student may still benefit from some extra time for lengthy tests (5-10 minute break every 45 minutes of testing for example)

### Notes
- Student reports that he/she has minimal symptoms and student can sit through a full class without symptom-exacerbation while being mentally engaged
- Student is expected to leave the classroom for a 20 minute break if symptoms occur
- No quizzes or tests

### Recommendations
- Avoid activities that increase symptoms
- No activities that interfere with a full night’s rest
- Homework is to be completed in intervals no longer than 45 min work/15 min break
- Increase physical activity as recommended by ATC
- Try to adopt a normal routine

### Important
- Student may need to take 20-30 min breaks and backing down if symptoms are exacerbated
- Student passes ImPACT Test or is recovered by ATC

### Student reports symptoms are not yet fully controlled with activity modification
- Student can control symptoms with activity modification and student can sit through a full class without symptom exacerbation while being mentally engaged
- Student is symptom-free for a full day of school without accommodations and passes ImPACT Test or deemed clinically recovered by ATC

### Important
- School days with accommodations*
- Notes may need to be provided
- Homework and make-up work will be completed on an “as-tolerated” basis, but is not expected to be fully completed
- As lesson academics allow, assignments should minimize “busy work” and focus on the most essential course requirements
- Student is expected to leave the classroom for a 20 minute break if symptoms occur
- No quizzes or tests

### Student reports symptoms are not yet fully controlled with activity modification
- Student can control symptoms with activity modification and student can sit through a full class without symptom exacerbation while being mentally engaged
- Student is symptom-free for a full day of school without accommodations and passes ImPACT Test or deemed clinically recovered by ATC

### Important
- School days with accommodations*
- Notes may need to be provided
- Homework and make-up work will be completed on an “as-tolerated” basis, but is not expected to be fully completed
- As lesson academics allow, assignments should minimize “busy work” and focus on the most essential course requirements
- Student is expected to leave the classroom for a 20 minute break if symptoms occur
- No quizzes or tests

### Student reports symptoms are not yet fully controlled with activity modification
- Student can control symptoms with activity modification and student can sit through a full class without symptom exacerbation while being mentally engaged
- Student is symptom-free for a full day of school without accommodations and passes ImPACT Test or deemed clinically recovered by ATC

### Important
- School days with accommodations*
- Notes may need to be provided
- Homework and make-up work will be completed on an “as-tolerated” basis, but is not expected to be fully completed
- As lesson academics allow, assignments should minimize “busy work” and focus on the most essential course requirements
- Student is expected to leave the classroom for a 20 minute break if symptoms occur
- No quizzes or tests

### Student reports symptoms are not yet fully controlled with activity modification
- Student can control symptoms with activity modification and student can sit through a full class without symptom exacerbation while being mentally engaged
- Student is symptom-free for a full day of school without accommodations and passes ImPACT Test or deemed clinically recovered by ATC

### Important
- School days with accommodations*
- Notes may need to be provided
- Homework and make-up work will be completed on an “as-tolerated” basis, but is not expected to be fully completed
- As lesson academics allow, assignments should minimize “busy work” and focus on the most essential course requirements
- Student is expected to leave the classroom for a 20 minute break if symptoms occur
- No quizzes or tests
Appendix III

Gradual Return to Sport Participation Following a Concussion

After a student-athlete has sustained a concussion, a 24-48 hour rest period is observed after which an athlete may gradually re-integrate into limited daily activities and gradual return to academics (see Return to Learn guidelines). If an activity increases the student-athlete’s symptoms the activity should be stopped immediately and they should return to the earlier stage the following day. Once an athlete has successfully started a gradual return to academics, a gradual return to physical activity can begin. Prior to an athlete returning to full participation in sport, she or he must have fully resumed full academic participation, must receive written medical clearance from a licensed health-care professional, and returned to his/her baseline on ImPACT, BESS, and Graded Concussion Symptom Checklist. Each step of the process must be supervised by a coach and the school ATC.

Football and Men’s Lacrosse Return to Play Criteria

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1: Gradual re-introduction</strong></td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td><strong>Stage 2: Light physical exertion</strong></td>
<td>Low levels of walking, jogging, or stationary bike.</td>
</tr>
<tr>
<td><strong>Stage 3: Moderate levels of physical exertion</strong></td>
<td>May participate in a helmet and shorts practice with no contact.</td>
</tr>
<tr>
<td><strong>Stage 4: Non-contact sport specific drills</strong></td>
<td>May participate in agility drills to include stick work or passing drills with no contact.</td>
</tr>
<tr>
<td><strong>Stage 5: Full contact practice</strong></td>
<td>May participate in full practice with pads.</td>
</tr>
<tr>
<td><strong>Stage 6: Return to full normal game play</strong></td>
<td></td>
</tr>
</tbody>
</table>

Field Hockey and Women’s Lacrosse Return to Play Criteria

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1: Gradual re-introduction</strong></td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td><strong>Stage 2: Light physical exertion</strong></td>
<td>Low levels of walking, jogging, or stationary bike.</td>
</tr>
<tr>
<td><strong>Stage 3: Moderate levels of physical exertion</strong></td>
<td>May participate in individual stick drills and increased endurance activities.</td>
</tr>
<tr>
<td><strong>Stage 4: Non-contact sport specific drills</strong></td>
<td>May participate in team agility drills to include stick work with no contact.</td>
</tr>
<tr>
<td><strong>Stage 5: Full contact practice</strong></td>
<td>May participate in full practice.</td>
</tr>
<tr>
<td><strong>Stage 6: Return to full normal game play</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Basketball Return to Play Criteria**

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1: Gradual re-introduction</td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td>Stage 2: Light physical exertion</td>
<td>Low levels of walking, jogging, or stationary bike.</td>
</tr>
<tr>
<td>Stage 3: Moderate levels of physical exertion</td>
<td>May participate in individual drills and increased endurance activities.</td>
</tr>
<tr>
<td>Stage 4: Non-contact sport specific drills</td>
<td>May participate in team agility drills to include dribbling, passing, and shooting drills with no contact.</td>
</tr>
<tr>
<td>Stage 5: Full contact practice</td>
<td>May participate in full practice.</td>
</tr>
<tr>
<td>Stage 6: Return to full normal game play*</td>
<td></td>
</tr>
</tbody>
</table>

**Wrestling Return to Play Criteria**

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1: Gradual re-introduction</td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td>Stage 2: Light physical exertion</td>
<td>Low levels of walking, jogging, or stationary bike.</td>
</tr>
<tr>
<td>Stage 3: Moderate levels of physical exertion</td>
<td>May participate in an individual practice to include increased endurance activities.</td>
</tr>
<tr>
<td>Stage 4: Sport specific drills</td>
<td>May participate in light partner drills excluding live drills.</td>
</tr>
<tr>
<td>Stage 5: Full contact practice</td>
<td>May participate in full practice to include live drills.</td>
</tr>
<tr>
<td>Stage 6: Return to full normal game play*</td>
<td></td>
</tr>
</tbody>
</table>

**Baseball and Softball Return to Play Criteria**

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1: Gradual re-introduction</td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td>Stage 2: Light physical exertion</td>
<td>Low levels of walking, jogging, throw and catch, or hitting from tee.</td>
</tr>
<tr>
<td>Stage 3: Moderate levels of physical exertion</td>
<td>May participate in fielding drills.</td>
</tr>
<tr>
<td>Stage 4: Sport specific drills</td>
<td>May participate in batting practice and base running.</td>
</tr>
<tr>
<td>Stage 5: Full contact practice</td>
<td>May participate in full practice.</td>
</tr>
<tr>
<td>Stage 6: Return to full normal game play*</td>
<td></td>
</tr>
</tbody>
</table>
### Volleyball Return to Play Criteria

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1:</strong> Gradual re-introduction</td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td><strong>Stage 2:</strong> Light physical exertion</td>
<td>Low levels of walking, jogging, or stationary bike.</td>
</tr>
<tr>
<td><strong>Stage 3:</strong> Moderate levels of physical exertion</td>
<td>May participate in individual agility, serving and setting the ball.</td>
</tr>
<tr>
<td><strong>Stage 4:</strong> Non-contact sport specific drills</td>
<td>May participate in team drills with no scrimmage or game type play.</td>
</tr>
<tr>
<td><strong>Stage 5:</strong> Full contact practice</td>
<td>May participate in full practice.</td>
</tr>
<tr>
<td><strong>Stage 6:</strong> Return to full normal game play*</td>
<td></td>
</tr>
</tbody>
</table>

### Soccer Return to Play Criteria

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1:</strong> Gradual re-introduction</td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td><strong>Stage 2:</strong> Light physical exertion</td>
<td>Low levels of walking, jogging, or stationary bike.</td>
</tr>
<tr>
<td><strong>Stage 3:</strong> Moderate levels of physical exertion</td>
<td>May participate in individual agility and shooting drills.</td>
</tr>
<tr>
<td><strong>Stage 4:</strong> Non-contact sport specific drills</td>
<td>May participate in team drills with no scrimmage or game type play.</td>
</tr>
<tr>
<td><strong>Stage 5:</strong> Full contact practice</td>
<td>May participate in full practice.</td>
</tr>
<tr>
<td><strong>Stage 6:</strong> Return to full normal game play*</td>
<td></td>
</tr>
</tbody>
</table>

### Cheerleading Return to Play Criteria

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1:</strong> Gradual re-introduction</td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td><strong>Stage 2:</strong> Light physical exertion</td>
<td>Low levels of walking, jogging, or stationary bike.</td>
</tr>
<tr>
<td><strong>Stage 3:</strong> Moderate levels of physical exertion</td>
<td>May participate in walk-through cheers with no tumbling, stunts, or jumps.</td>
</tr>
<tr>
<td><strong>Stage 4:</strong> Sport specific drills</td>
<td>May participate in tumbling and jumps.</td>
</tr>
<tr>
<td><strong>Stage 5:</strong> Full contact practice</td>
<td>May participate in full practice to include stunts.</td>
</tr>
<tr>
<td><strong>Stage 6:</strong> Return to full normal game play*</td>
<td></td>
</tr>
</tbody>
</table>
Track Field Event Return to Play Criteria

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Functional Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1:</strong> Gradual re-introduction</td>
<td>Gradual progression of daily/work activities that does not provoke symptoms</td>
</tr>
<tr>
<td><strong>Stage 2:</strong> Light physical exertion</td>
<td>ATC specific guidelines</td>
</tr>
<tr>
<td><strong>Stage 3:</strong> Moderate levels of physical exertion</td>
<td>ATC specific guidelines</td>
</tr>
<tr>
<td><strong>Stage 4:</strong> Sport specific drills</td>
<td>ATC specific guidelines.</td>
</tr>
<tr>
<td><strong>Stage 5:</strong> Full contact practice</td>
<td>ATC specific guidelines</td>
</tr>
<tr>
<td><strong>Stage 6:</strong> Return to full normal play*</td>
<td></td>
</tr>
</tbody>
</table>

*An additional day of full contact practice may be added if deemed necessary by the Athletic Trainer. This may be necessary depending on the sport to which the student-athlete is returning, practice status, previous concussion history, and severity of symptoms over the course of healing.

**Specific stage progression and stage delineation is at the discretion of the Athletic Trainer. There should be at least 24 hours (or longer) for each step of the progression. If any symptoms worsen during exercise, the athlete will go back to the previous stage. Resistance training should be added only in the later stages (stage 3 or 4 at the earliest). If symptoms are persistent (eg, more than 10-14 days) the athlete should be referred to a healthcare professional who is an expert in concussion for further evaluation and management.
Appendix IV

**SCAT5®**

**SPORT CONCUSSION ASSESSMENT TOOL — 5TH EDITION**

DEVELOPED BY THE CONCUSSION IN SPORT GROUP

FOR USE BY MEDICAL PROFESSIONALS ONLY

Supported by

![FIFA](image)

![Olympics](image)

![NCAA](image)

![FEI](image)

---

**Patient details**

Name: ____________________________

DOB: ____________________________

Address: ____________________________

ID number: ____________________________

Examiner: ____________________________

Date of injury: ____________ Time: ____________

---

**WHAT IS THE SCAT5?**

The SCAT5 is a standardized tool for evaluating concussions designed for use by physicians and licensed healthcare professionals. 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 12 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.

This tool may be freely copied in its current form for distribution to individuals, teams, groups and organizations. It should not be altered in any way, re-branded or sold for commercial gain. Any revision, translation or reproduction in a digital form requires specific approval by the Concussion in Sport Group.

---

**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.**

---

© Concussion in Sport Group 2017


Copyright Article author (or their employer) 2017. Produced by BAJ Publishing Group Ltd under licence.
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 off field after the 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 orally if necessary in the event of disorientation 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 orally.

STEP 1: RED FLAGS

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

STEP 2: OBSERVABLE SIGNS

Witnessed □  Observed on Video □

- Loss of balance in the stationary surface
- Balance and gait (normal/mildly impaired/marriage, stumbling, wobble)
- Inability to postural recovery, or inability to respond appropriately to instructions
- Weak or absent tone
- Facial injury or facial bruising

STEP 3: MEMORY ASSESSMENT MADDOCKS QUESTIONS

If you are not at your best today, please respond carefully and give your best effort. And, tell me what happened.

1. Mark your correct answer / Who is correct:
   - What season are we in today? □ Y □ N
   - What month is it? □ Y □ N
   - Who scored first in the world? □ Y □ N
   - What team did you play last weekend? □ Y □ N
   - Did your team win the game? □ Y □ N

   Note: Appropriate sport-specific questions may be substituted.

STEP 4: EXAMINATION

GLASGOW COMA SCALE (GCS)

- Time of assessment
- Date of assessment

- Best eye response (E)
  - Eye opening to voice □ Y □ N
  - Eye opening to pain □ Y □ N
  - Eye opening spontaneously □ Y □ N

- Best verbal response (V)
  - Verbal response □ Y □ N
  - Inappropriate words □ Y □ N
  - Confused □ Y □ N
  - Disoriented □ Y □ N

- Best motor response (M)
  - Motor response □ Y □ N
  - Extensor to pain □ Y □ N
  - Absent reflex to pain □ Y □ N
  - Painful/unresponsive to pain □ Y □ N
  - Limb extension to pain □ Y □ N
  - Sleepy or in coma □ Y □ N

- Glasgow Coma Scale (GCS) = E + V + M

CERVICAL SPINE ASSESSMENT

- Does an 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 neck flexion and extension? □ Y □ N
- In a patient who is not lucid or fully conscious, a cervical spine injury should be assumed until proven otherwise.

© Concussion in Sport Group 2017
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 head injury or concussion? Yes No
- Diagnosed with a learning disability / attention deficit disorder? Yes No
- Diagnosed with depression, anxiety or other psychiatric disorder? Yes No

Current medications? If yes, please list:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

STEP 2: SYMPTOM EVALUATION

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>Memory</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Mood</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Balance</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Fatigue</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Headache</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>
</tr>
<tr>
<td>Blurred vision</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>Feeling &quot;not 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>Frustration</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>Tension</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Depressed feeling</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Headache</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 100

Do your symptoms get worse with physical activity? Y N

Do your symptoms get worse with mental activity? Y N

If 100% is thinking perfectly normal, what percentage normal do you feel? ____________

If not 100%, why?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Page | 22

© Concussion in Sport Group 2017

STEP 3: COGNITIVE SCREENING
Standardized Assessment of Concussion (SAC)

ORIENTATION

- What month is it? 0 1
- What is the date today? 0 1
- What is the day of the week? 0 1
- What year is it? 0 1
- What time is it right now (within 1 head)? 1 1

Orientation score: 5

IMMEDIATE MEMORY

The immediate memory component can be completed using the traditional 5-word list for each trial as an optional using 50 words per trial to minimize any ceiling effect. All 3 trials must be administered irrespective of the number correct on the first trial. Administer at the rate of one trial per second.

*Please choose one of the 5-10 word lists for each trial and write the appropriate responses.

Immediate Memory Score: 15

CONCENTRATION

DIGITS BACKWARDS

Please circle the digit that chooses (A, B, C, D, E, F). Administer at the rate of one digit per second reading down the selected column. If a group is not a complete number and seven or more, the participant loses focus of the digit ordered. For example, if the digit is 3, the group is 1, 2, 3.

Concentration on Number List (score): 15

MONTHS IN REVERSE ORDER

Using the months in reverse order, start with the last month and proceed backward. (Do not include Dec, Nov, Oct, Sep, Aug, Jul, Jun, May, Apr, Mar, Feb - Jan)

Concentration Total Score (Digits + Months): 15
STEP 4: NEUROLOGICAL SCREEN

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

- Can the patient read aloud (eg, sentence checklist) (stand and follow instructions without difficulty)?
  - Yes
  - No

- Does the patient have full range of arm (see PASS criteria for lack of movement)?
  - Yes
  - No

- Without moving their head or eyes, can the patient touch their toes with one hand?
  - Yes
  - No

- Can the patient perform the finger taps coordination or test reliably?
  - Yes
  - No

BALANCE EXAMINATION

Modified Balance Error Scoring System (mBESS) testing.

- Which foot was injured?
- Which was the more dominant foot?
- Standing surface (hard floor, etc., etc.)
- Footwear (shoes, socks, leaves, etc., etc.)
a. Elderly
b. Errors
- Double leg stance:
  - at 10
- Single leg stance (non-dominant foot):
  - at 12
- Tandem stance (non-dominant foot at the heel):
  - at 15
- Total Errors:
  - at 15

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.

- Time Started
- Time Ended

Total number of words recalled accurately

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: ____________________
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:

1. 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.
2. Avoid alcohol.
3. 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
   c) Do not drive until cleared by a healthcare professional.
4. Return to play/sports requires clearance by a healthcare professional.

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

© Concussion in Sport Group 2017

Contact details or stamp
INSTRUCTIONS

Words in italics throughout the SCATS 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. In handball it is advantageous to access how an athlete "typically" feels when doing the specific post-match stage in best to tell them the athlete feels at the instant of testing.

The symptom scale should be completed by the athlete, and by the examiner. In situations where the symptom scale is being completed after an event, it should be given in a rest period, usually after supervision to ensure its completion is honest.

For total number of symptoms, maximum possible is 22; except immediately post injury, if symptoms are omitted, then this creates a maximum of 19.2.

For summation severity score, add all symptom tables, maximum possible is 72 x 6 - 132, except immediately post injury if it is omitted, which then creates a maximum of 238-132.

Immediate Memory
The Immediate Memory component can be completed using the traditional 5 word recall test, however using 10 words per trial. This 10 word recall is the Immediate Memory task. The examiner needs to make the recall as difficult as possible, by repeating 5 word groups a total of 10 words per trial. In this case, the maximum score possible is 75, with a total recall score of 25.

Choose one of the following:
1. 3 words
2. 4 words
3. 5 words
4. 6 words
5. 7 words
6. 8 words
7. 9 words
8. 10 words

Sight Word Test

Balance Testing - types of errors
1. Hands lifted off
2. Step, stumble, or fall
3. Lifting heel or heel first
4. Movements greater than 30 degrees abduction
5. Remaining out of test position - 5 seconds

"I am going to test your balance. Please show me your balance. If you are unable, I may use your ears above role (if applicable)".

Balance Testing Criteria: 20/20 with balance

(a) Double leg stance:

"The first stance is standing with your foot on your hip and with your eyes closed. You should maintain stability for 20 seconds. You are counting the number of times you are out of position, if you should be out of this position, open your eyes and return to the start position and count the number of times you are out of position. If you should be out of this position, open your eyes and return to the start position and count the number of times you are out of position. This test will consist of these twenty assessments with different errors."

(b) Single leg stance:

"The second stance is standing with your foot on your hip and with your eyes open. You should maintain stability for 20 seconds with your foot on your hip and with your eyes open. Again, you are counting the number of times you are out of position, if you should be out of this position, open your eyes and return to the start position and count the number of times you are out of position. This test will consist of these twenty assessments with different errors."

(c) Tandem stance:

"Now stand heel to heel with your non-dominant foot in front. Your weight should be distributed evenly. You are counting the number of times you are out of this position. Again, you are counting the number of times you are out of position, if you should be out of this position, open your eyes and return to the start position and count the number of times you are out of position. This test will consist of these twenty assessments with different errors."

Concentration

Digits Backward

Choose one column of digits from A, B, C, D, E, F and admit these digits in order. Now, you are going to read a string of numbers and when it is done, you repeat them back to me in reverse order. If I tell you 7-8-9, you would say 9-8-7.

Months in reverse order

Now tell me the months of the year in reverse order. Start with the last month and go backwards. Do you agree, December, November, and so on.

1 pt. for entire sequence correct.

Delayed Recall

The delayed recall should be performed after stimuli have been dropped since the end of the immediate recall section.

"Do you remember the list of stimuli that I read to you a few minutes ago?"

Now, tell me what you remember in any order.

Now, tell me what you remember in any order.

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 (mBESS). A 15 item version is required for this testing.

Each of 20 second trials is scored by counting the number of errors. The examiner notes the errors made after the athlete has completed the proper start position. The modified BESS is calculated by adding error zero points for each error during the three 20 second trials. The examiner notes amount of time for any single condition to 0. If the athlete completes multiple errors simultaneously, only one error is recorded that the athlete did not quickly return to the starting position, and counting should resume once the athlete has returned to the standing position for a minimum time. The examiner should score the highest possible scores, too, for best instruction conditions.

Possible for further assessment, the mean 3 stance can be performed on the surface of treadmill dome test (e.g., approximately 4 times 20 meters).

Balance testing - types of errors
1. Hands lifted off
2. Step, stumble, or fall
3. Lifting heel or heel first
4. Movements greater than 30 degrees abduction
5. Remaining out of test position - 5 seconds

"I am going to test your balance. Please show me your balance. If you are unable, I may use your ears above role (if applicable)."

Balance Testing Criteria: 20/20 with balance

(a) Double leg stance:

"The first stance is standing with your foot on your hip and with your eyes closed. You should maintain stability for 20 seconds. You are counting the number of times you are out of position, if you should be out of this position, open your eyes and return to the start position and count the number of times you are out of position. This test will consist of these twenty assessments with different errors.

(b) Single leg stance:

"The second stance is standing with your foot on your hip and with your eyes open. You should maintain stability for 20 seconds with your foot on your hip and with your eyes open. Again, you are counting the number of times you are out of position, if you should be out of this position, open your eyes and return to the start position and count the number of times you are out of position. This test will consist of these twenty assessments with different errors.

(c) Tandem stance:

"Now stand heel to heel with your non-dominant foot in front. Your weight should be distributed evenly. You are counting the number of times you are out of position, if you should be out of this position, open your eyes and return to the start position and count the number of times you are out of position. This test will consist of these twenty assessments with different errors.

References
CONCUSSION INFORMATION

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

**Signs to watch for**

- Persistent confusion or inability to understand
- Unusual behavior or mood changes
- Persistent headache
- Persistent drooling or nausea
- Melted vision or no vision
- Loss of balance or ability to maintain balance
- Inability to recognize people or places

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 resolve. 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 protocol can be started. The athlete should not return to play until their concussion-related symptoms have resolved and the athlete has successfully returned to full school/lifestyle 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 movement at each step</th>
<th>Goal of each step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Symptom free</td>
<td>Basic activities that do not provoce symptoms</td>
<td>Gradual increase in intensity of work/school activities.</td>
</tr>
<tr>
<td>2. Light aerobic exercise</td>
<td>Walking or stationary cycling, slow to moderate pace. No resistance training</td>
<td>Increase heart rate.</td>
</tr>
<tr>
<td>3. Sport specific exercise</td>
<td>Running or shuttle drills, no resistance training</td>
<td>Add resistance.</td>
</tr>
<tr>
<td>4. Non-contact</td>
<td>Handball drills, drills, e.g., passing drills, very slow progression resistance training</td>
<td>Exercises, coordination, increased thinking, memory.</td>
</tr>
<tr>
<td>5. Full contact</td>
<td>Following guided drills with participation in control training activities.</td>
<td>Return to contact sports, evaluate functional skills by coaching staff.</td>
</tr>
<tr>
<td>6. Return to play</td>
<td>Normal game play</td>
<td>Gradual return to typical activities.</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 be absent from school for a few days to allow their symptoms to resolve. 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. If a particular activity makes symptoms worse, the athlete should have that activity reduced until symptoms get better.

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 in each step</th>
<th>Goal of each step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Daily activities that do not give the athlete symptoms</td>
<td>Typical activities that the athlete does during the day so they do not become overwhelmed (e.g., reading, typing, homework). Start with 5-10 minutes at a time and gradually build up.</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 to school work. May need to start with a partial day and/or increased breaks during the day.</td>
<td>Increase tolerance to academic activities.</td>
</tr>
<tr>
<td>4. Return to school full-time</td>
<td>Gradually progress school activities in 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 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, etc.
- Reappearance from teachers that the child will be supported while getting better.

The student 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.
The Balance Error Scoring System (BESS) provides a portable, cost-effective and objective method of assessing static postural stability. The BESS can be used to assess the effects of mild head injury on static postural stability. Information obtained from this clinical balance tool can be used to assist clinicians in making return to play decisions following mild head injury. The BESS can be performed in nearly any environment and takes approximately 10 minutes to conduct.

The balance-testing regime consists of three stances on two different surfaces. The three stances are double leg stance, single leg stance and tandem stance. The two different surfaces include both a firm (ground) and foam surface. Athletes’ stance should consist of the hands on the iliac crests, eyes closed and a consistent foot position depending on the stance. Shoes should not be worn.

In the double leg stance, the feet are flat on the testing surface approximately pelvic width apart.

In the single leg stance position, the athlete is to stand on the non-dominant leg with the contralateral limb held in approximately 20° of hip flexion, 45° of knee flexion and neutral position in the frontal plane.

In the tandem stance testing position, one foot is placed in front of the other with heel of the anterior foot touching the toe of the posterior foot. The athlete’s non-dominant leg is in the posterior position. Leg dominance should be determined by the athlete’s kicking preference.

Administering the BESS: Establish baseline score prior to the start of the athletic season. After a concussive injury, re-assess the athlete and compare to baseline score. Only consider return to activity if scores are comparable to baseline score. Use with Standardized Symptom Scale Checklist.

Scoring the BESS: Each of the trials is 20 seconds. Count the number of errors (deviations) from the proper stance. The examiner should begin counting errors only after the individual has assumed the proper testing position.

![Images of Balance Stances]

**Errors:**
- Moving the hands off the hips
- Opening the eyes
- Step, stumble or fall
- Abduction or flexion of the hip beyond 30°
- Lifting the forefoot or heel off of the testing surface
- Remaining out of the proper testing position for greater than 5 seconds

*The maximum total number of errors for any single condition is 10.*

If a subject commits multiple errors simultaneously, only one error is recorded.

**B.E.S.S. SCORECARD**

<table>
<thead>
<tr>
<th>Count Number of Errors</th>
<th>FIRM Surface</th>
<th>FOAM Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Leg Stance (max of 10 each stance/surface)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Leg Stance (feet together)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tandem Stance (non-dominant foot)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tandem Stance (non-dominant foot in back)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL SCORES:**

| total each column |            |              |

**B.E.S.S. TOTAL:**

(Firm+Foam total)

Airex™ Foam Balance Pads available at [www.power-systems.com](http://www.power-systems.com) or through most sporting goods stores.
Appendix VI

On-Campus Transfer of Care

_________________________ presents to the nurse’s office on _________________
(Athlete’s Name) (date)
complaining of pain in the ______________________________. Upon evaluation, this athlete
(body region) does not require emergency medical referral and is therefore being referred to the staff Athletic
Trainer for further evaluation. I, ____________________________ have called and spoke with
(nurse on duty) the staff Athletic Trainer and he/she is on campus and available to evaluate the injury.

Additional Notes:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

____________________________________  ________________________________
Nurse- Printed Name      ATC- Printed Name

____________________________________  ________________________________
Nurse- Signature      ATC- Signature

____________________________________  ________________________________
Date       Date
Appendix VII

Home Care Instructions for Concussion

Athlete ___________________________ Date of Injury ____________ Sport _____________
Phone Number ______________________ Parent/Guardian Name __________________________

While participating in athletics your son/daughter sustained a head injury that appears to be a concussion or mild brain injury. Your student-athlete’s safety is our main priority and s/he will not be able to return to activity until cleared by a licensed medical professional who can certify s/he is aware of the current medical guidance on concussion evaluation and management. Your student-athlete must complete the ACPS supervised Gradual Return to Sports Participation Program prior to being allowed to compete.

In some instances, the signs of a concussion do not become obvious until several hours or even a day after the injury. Headaches, nausea, dizziness, mental fogginess, fatigue, mood changes, etc. may even be a little bit worse the day after injury.

Each person recovers from a concussion a little differently. However, the following signs/symptoms are “red flags” that should alert you to seek immediate medical attention (go to the ER):

- Decreasing level of consciousness
- Increasing confusion
- Increasing irritability
- Weakness or numbness in the arms or legs
- Eye pupils becoming unequal in size
- Repeated vomiting
- Seizures
- Slurred speech or inability to speak
- Inability to recognize people or places
- Worsening confusion
- Severe or rapidly worsening headache
- Persisting double vision
- Severe neck pain

The following are symptoms associated with a concussion, but are NOT red flags:

- Headache
- Nausea
- Dizziness
- Blurred vision
- Feeling eye strain
- Balance problems
- Sensitivity to light
- Sensitivity to noise
- Feeling slowed down
- Feeling like “in a fog”
- Difficulty concentrating
- Difficulty remembering
- Fatigue or low energy
- Confusion
- Drowsiness
- More emotional
- Irritability
- Sadness
- Nervous or Anxious
- Trouble falling asleep
- Needing more sleep
Please follow the instructions below for home care:

It is OKAY for your child to:
- Use an ice or heat pack for head and neck comfort
- Eat a normal diet and stay well hydrated
- Go to sleep
- Rest
- Take all currently prescribed prescription medications (including those for ADHD, migraines, depression, anxiety, etc)

Your child SHOULD NOT:
- Check eyes with flashlight
- Wake up every hour
- Drink alcohol
- Drive if symptomatic
- Strenuously exercise

Please remind your child to check-in with the Athletic Trainer prior to practice/event on the first day he/she returns to school.

Your Athletic Trainer ________________________ Phone: ______________ Email: _________________

Recommendations provided by: _______________________________ Date: ____________________
Appendix VIII

Licensed Medical Professional Clearance Form

I, ________________________________ certify that to the best of my knowledge, I am aware of the current medical guidance on concussion evaluation and management. I have evaluated the student-athlete's symptoms and release them to the care of the Athletic Trainer for monitoring of return to play procedures.

____________________________________________________
Licensed Health Care Provider Signature

____________________________________________________
Licensed Health Care Provider Printed Name

____________________________________________________
Phone Number