Policy on Management of Mild Traumatic Brain Injury (MTBI)
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The College of the Holy Cross Sports Medicine Department maintains the health and well-being for all student-athletes. The Sports Medicine staff is trained to treat a variety of musculoskeletal injuries and other health related issues. This document reflects the best practices recommended by the NCAA and the Patriot League for management of mild traumatic brain injuries. The Sports Medicine Department follows the policy below for all student-athletes who have suffered from a head injury and subsequent concussion.

**Definition:** A *mild traumatic brain injury (MTBI)* or *concussion* is defined as “a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces.” Several common features that incorporate clinical, pathological, and biomechanical injury concepts that may be utilized in defining the nature of a MTBI include:

1. The result of either a direct blow to the head, face, neck or elsewhere on the body with an ‘impulsive’ force transmitted to the head.
2. Rapid onset of short-lived impairment of neurologic function that resolves spontaneously.
3. Neuropathological changes but the acute clinical symptoms largely reflect a functional disturbance rather than a structural injury.
4. A graded set of clinical symptoms that may or may not involve loss of consciousness.
5. Resolution of the clinical and cognitive symptoms typically follows a sequential course; however, it is important to note that in a small percentage of cases however, post-concussive symptoms may be prolonged.
6. No abnormality on standard structural neuroimaging studies is seen.

The following are operational steps and treatment orders for the management of sport-related MTBI as seen by the Sports Medicine staff at the College of the Holy Cross. These orders are based upon the guidelines set forth by the Division I Concussion Safety Protocol Committee.

**Pre-Season Education:**
- All student-athletes must read, sign, and submit the *College of the Holy Cross Student-Athlete Concussion Responsibility Statement* (*Appendix A*) annually, prior to participating in that year’s organized team activities, in which they accept the responsibility for reporting the signs and symptoms associated with a possible MTBI to the Sports Medicine staff.
  - The certified athletic trainer working with that student-athlete and their respective team must scan this form to MediCat annually to ensure that the form has been signed and received by the sports medicine department. Ideally, this form will be submitted with the incoming student-athlete paperwork during the summer months.
  - Student-athletes will have access to various educational materials on concussions, including the NCAA fact sheet on concussions for student-athletes. (*Appendix B*).
  - This fact sheet, along with the complete MTBI policy, is made available to the student-athletes via the CFM Concussion Training Module.
    - The following is a description of the CFM module, taken from the college’s introductory letter: “The Holy Cross Athletic Department has an established relationship with CFM Partners, Inc. to create a web-based concussion education module. The module will provide parties the opportunity to learn more about concussion awareness, a better understanding of what a concussion is, what signs and symptoms are associated with concussions, and how to recognize these symptoms. As it is required for all coaches and student-athletes who suspect an individual may have sustained a concussion to report it to a member of the Sports Medicine Staff, the goal of this module is to better equip everyone with the knowledge to do so.”
- The College’s Certified Athletic Trainers and team physicians review and agree on the protocol for managing sport-related MTBI prior to the beginning of the athletic season.
- All coaches, athletic directors, athletic trainers, and team physicians are educated regarding the seriousness of a possible MTBI, the use of this policy, and the NCAA policy disqualifying an athlete from play in the same day as a suspected MTBI.
  - All of these aforementioned athletic department members are then required to complete the same concussion education training, the CFM module, at the start of each academic year.
    - All coaches will receive copies of the Concussion Education handout (*Appendix C*) produced by the NCAA when completing this module.
    - Upon completion, all coaches then have an understanding for their responsibility to report any possible MTBI/concussion to the medical staff. Completion of this program (by student-athletes,
coaches, athletic directors, Athletic Trainers, and physicians) will be tracked by the Sports Medicine Department to ensure an electronic signature has been received. The electronic signature then serves as the signed acknowledgement of the responsibility with the concussion material.

Pre-Participation Assessment:

- The team physicians at the College have unchallengeable authority regarding a student-athlete's playing status and clearance. Student-athletes with a reported history of a MTBI will also answer a detailed Pre-participation Physical Examination (PPE) concussion questionnaire for their medical records as seen in (Appendix D)
  - Team physicians will discuss the student-athlete's concussion history during his/her pre-participation physical. At this time, the team physician will determine the student-athlete's playing status.
  - More conservative treatment, as coordinated with and by a team physician, should be provided to the concussed athlete with a medical history of MTBI or related injury.
  - Furthermore, these identified student-athletes may require reevaluation within the following 6 months.
- Athletic trainers will implement and document baseline testing prior to the start of athletic seasons for every student-athlete using the online ImPACT Concussion Assessment tool and abbreviated Sport Concussion Assessment Tool 5 (Appendix E) concussion evaluation tools. All student-athletes are required to complete this baseline testing prior to the beginning of his/her first year of athletic participation.
  - More information on ImPACT testing can be found on the ImPACT website: https://www.impacttest.com/about/

Recognition and Diagnosis of Concussion:

- All members of the Sports Medicine staff are trained to recognize the signs and symptoms of a concussion, to incorporate screening/evaluation tools, can differentiate between a MTBI and a focal traumatic brain injury (TBI).
- The Sports Medicine staff members are educated on the guidelines for return to play, guidelines for immediate referral to the Emergency Department, guidelines for physician referral, and guidelines for disqualification as outlined in The MBTI Management Information sheet (Appendix F).
- A member of the Sports Medicine staff is always on-site at home events and traditional season away events for contact sports. Sports that are classified as contact sports at The College of the Holy Cross include basketball, field hockey, football, ice hockey (M/W), lacrosse (M/W), pole vault (M/W), and soccer (M/W). Per the NCAA concussion safety checklist, “to be present means to be on site at the campus or arena of the competition.”
- Additionally, for traditional season contact practices a member of the Sports Medicine staff will be on-site for medical coverage. A Sports Medicine staff member is available and positioned in the main athletic training room located in the Hart Center at the Luth Athletic Complex during non-traditional contact practices. The NCAA concussion safety defines available to mean, “...at a minimum, medical personnel can be contacted at any time during the practice via telephone, messaging, email... through which the incidence of concussion (actual or suspected) can be discussed and arrangements of the student-athlete’s evaluation can be made.”
- Clinical evaluation should include a primary survey, and thorough secondary survey with a history, observation, palpation, and special testing (stress tests, range-of-motion testing, strength testing, neurological testing, and functional testing).
- Furthermore, concussion screening during the clinical sideline evaluation will include use of the Sport Concussion Assessment Tool 5 (SCAT5) (Appendix G)
  - If a sideline evaluation results in the diagnosis of a concussion, the student-athlete will be completely removed from all physical activity and excluded from play, including practices, competitions, and strength and conditioning workouts. They must then follow up with a team physician as soon as possible and will refrain from all athletic activities until cleared to return.
  - Student-athletes will also be restricted from classroom activity, including exams, homework and screen time, the same day as the concussion is diagnosed.
- Specifically, when evaluating a sport-related concussion, the Sports Medicine staff will focus attention on:
  - The Glasgow Coma Scale <13,
  - Level of consciousness,
  - Focal neurological deficits, emesis
  - Diminished/worsening mental status/neurological signs/symptoms,
  - Spinal injury/involvement.
Post Concussion Management:

- A combination of screening tools will be implemented during a post-injury evaluation of an athlete who has experienced a concussion:
  - The entire SCAT 5 must be completed during the initial evaluation post-injury.
  - Team physicians must be informed of the concussion within 24-48 hours post injury. Team physicians will also evaluate the student-athlete with a concussion diagnosis. They will review the results of the SCAT 5 and the graded symptom score sheet to monitor progress/healing.
- Additional assessment of the cervical spine and cranial nerves will be performed to identify any cervical spine or intracerebral (focal TBI) injuries.
- The Athletic Trainer will monitor a patient’s vital signs, symptoms, and level of consciousness for the duration of the practice or competition.
  - If symptoms worsen or the student-athlete’s physical/mental state declines at any time, the athletic trainer may then decide to activate the Emergency Action Plan for that specific venue. The athletic trainer should call campus safety (x2222) and then state:
    - Your name and title
    - Specific location of injured athlete
    - Nature of injury – emphasize if it is a life-threatening injury
    - Status of student-athlete
    - Name of hospital to which you would prefer the student-athlete to be transported (St. Vincent’s Hospital, UMass Medical, University or Memorial campus).
    - Stay with the student-athlete. Have someone wait for the ambulance to direct it to the proper location.
  - When the student-athlete is transported to a medical facility, a Sports Medicine physician should be notified as soon as possible.
- The Athletic Trainer and Sports Medicine staff will document all pertinent information surrounding the concussive injury, including but not limited to:
  - Mechanism of injury
  - Initial signs and symptoms
  - State of consciousness
  - Findings on serial testing of symptoms and neurocognitive function and postural-stability tests
  - Instructions given to the athlete and caretaker(s)
  - Recommendations provided by the physician and subsequent referrals
  - Athlete’s gradual return to all cognitive activities and classes (8) athlete’s graduated return to play protocol (Appendix H)
  - Date and time of the athlete’s full return to play
  - Relevant information on the patient’s history of prior concussion and associated recovery patterns.
- Verbal instructions are always given to the student-athlete and a roommate and/or teammate for at home care and management. All concussed athletes may be provided with home care instructions (Appendix I) for the student athlete’s current roommate/responsible friend to refer to while monitoring their care away from the athletic training room.
- Athletic trainers employ a variety of resources to continually monitor the student-athlete’s recovery post-concussion.
  - A Graded Symptom Scale (Appendix J) must be completed daily to monitor the student-athlete’s day-to-day progress. Before any type of return to play protocol is initiated, this scale must reflect a total symptom score of “0” for at least 24 hours.
  - Impact Concussion Assessment testing must be done with the student-athlete is symptom-free for 24 hours and prior to the start of the return to play process.
  - Team physicians must give clearance for a student-athlete to return to classes.
- Student-athletes with prolonged/lingering symptoms, deteriorating symptoms, or other physical/mental side affects will regularly follow up with the team physician. Team physicians will refer these student-athletes to neurologists and/or neuropsychologists for further evaluation.

Return to Learn

- A team physician or a Sports Medicine Fellow must be informed of all concussed athletes within 24-48 hours of
injury. During that period, specifically, student-athletes are not allowed to participate in both physical and cognitive activities (class, homework and even team meetings).

- The team physician will evaluate the student-athlete and then prescribe the recommended treatment. One of the new standards for treatment includes “cognitive rest.”
  - Cognitive rest requires the injured person to abstain from screen time, including texting, reading on their phone/computer screen; the student-athlete will be required stay home from class while they recover, limit their time reading and doing class related work, especially if they cannot tolerate light activity. They may also be restricted from watching team practices. The guidelines for cognitive rest are created to limit the potential for worsening of symptoms during their recovery.
  - After the evaluation, the team physician will alert the class dean of the student-athlete’s concussion. The dean must then pass the information along to the professors to allow the student-athlete to miss class, in order to treat their concussion, and allow them to make up missed class work and exams.

- Medical clearance for return-to-learn will take place prior to a student-athlete returning to any aspect of their respective sport, including watching practice. Such clearance will be granted in agreement between the team AT and treating physician. After clearance, student-athletes will be progressed back to class/homework, as they can tolerate. The Athletic Trainer continues to monitor their status/symptoms during this part of their cognitive return. Should symptoms worsen or return at any time during the return to academic requirements, the student-athlete will follow-up for re-evaluation with a team physician.

- With all concussions, the athletic trainer acts as the point person for return. However, the College has created a multi-disciplinary team, encompassing many members and representatives of the College community, to ensure that all possible resources are available to the concussed student-athlete. Many of the members of the team meet annually to discuss the campus wide concussion policy, to learn best practices for diagnosis and care of MTBI/concussions from Sports Medicine, and to discuss any ways to continually improve the concussion policy.

- Members of this team include:
  - The respective Athletic Trainer
  - The Team Physician and Health Services
  - Class Deans/College Administrators
  - Professors/Course Instructors
  - Coaches
  - Athletic Department Representatives
  - Others: counselors, office of disability services/ADAAA officers, outside health care providers

- The Holy Cross Sports Medicine Department and the team physicians ensure compliance with the ADAAA by consulting with the Office of Disability Services. Questions regarding and relating to disabilities and any necessary services are fielded by the Office of Disabilities. Such so, the Office of Disabilities will coordinate with the team physician should a student-athlete’s case fail to be managed by schedule modification/academic accommodations and require more advanced treatment.

- As previously mentioned, the class deans are informed on very preliminary details about the seriousness of the injury. After the initial 24-48 hour period of cognitive rest and per protocol, the Class Deans have further asked for updates regarding their cognitive rest and potential return to learn. **If the student has not returned for one week, the team physician (who is always aware of the progress) will re-evaluate and determine if further testing is necessary.**
  - The class deans use this information to inform the student-athlete’s professors and other campus resources on what accommodations need to be made for the individual.
  - Student-athletes are encouraged to reach out their professors as well, to connect with them about their restrictions and modifications while recovering from the concussion.

**Return to Play**

- The team athletic trainer will act as the point person for the case and will follow the progress for the duration of the concussed state. It is the responsibility of the athletic trainer to follow up daily with the concussed student-athlete. During the check-ups, the Athletic Trainer must address memory, focus, concentration, mental processing, and other symptoms that may affect the ability to begin cognitive activity or to progress cognitive activity.
- The team physician will be kept abreast while the student-athlete progresses and has the final say for medical clearance to enter the return to play protocol and eventual full return to sport; if there are any lingering or worsening symptoms as cognitive or physical activity is implemented, further evaluations will be done.
- The return to play process involves a gradual progression through exertion levels and a phased introduction to contact sports.
- The Return to Play Protocol, (RTP), outlines the process in detail (**Appendix H**). It includes, but is not limited to these components:
  - Athletes must be asymptomatic for 24 hours before they can begin the RTP protocol
The RTP protocol is 5 to 6 days and includes:

- A Post-Injury ImPact Test
- Cardiovascular exertion testing
  - Increase heart rate via exercises including, but not limited to, bike, elliptical, or running.
- Strength training
  - Collaborate with the team’s respective strength coach to complete missed lift workouts
- Sport specific skills and drills,
- Non-contact drills,
- Contact drills: day 5 of the graduated return-to-play protocol
- A return to full participation (i.e. practices and competitions) without restriction

If recurrent injury occurs, the athlete should be held from activity for 7 days after symptoms resolve before the graduated return-to-play protocol.

Reducing Exposure to Head Trauma

- The Holy Cross Sports Medicine Department has adopted the principles set forth by the Patriot League. We strive to provide quality care and operate in a manner that protects the student-athletes’ well-being. We are able to act as independent authorities for decisions made within the best interest of the student-athlete.
- Therefore, we, along with the rest of the athletic department adhere by the many guidelines created to reduce head injury. Additionally, we regularly educate ourselves and update the MTBI policy based upon the best practices set forth and guidelines for appropriate care of head injuries.
- Furthermore, the Sports Medicine Department, as discussed, has specific educational requirements for coaches, student-athletes, athletic directors, team physicians, and the athletic trainers. Education is an important component in reducing head injuries.
- The Holy Cross Football Program has an established relationship with ProTech Cap and is part of the Defend Your Head program. Currently, they are working with the third phase of helmet modification and development. This phase features a more secure clipping method, so the ProTech cap will stay on the helmet.
  - This form fitted helmet cover is comprised of polyurethane material. The goals of this program are to absorb and disperse the forces on the head, minimize the repetitive sub-concussive microtraumas that may potentially lead to head injury, and to, hopefully, reduce the number of concussions sustained.
  - The Holy Cross Sports Medicine Department assists the Equipment Managers with cap fitting and cap maintenance. Originally, only specific positions were required to wear these caps (interior linemen, Offensive and Defensive linemen, linebackers and running backs) because they were highlighted positions who experienced more head impacts during both full and half padded practices. An increased number of head impacts could lead to microtraumas and head injury/MTBIs. Now, the cap is a mandatory requirement for all Holy Cross football players during practices only.
  - More information can be found here: http://www.defendyourhead.com/
- All helmet equipment standards, as set by the National Operating Committee on Standards for Athletic Equipment (NOCSAE) and the CSA (Canadian Standards Association), will be enforced to help protect athletes from potential head injury.
  a. Helmet fitting guidelines as provided by the manufacturer for each helmet will also be enforced by the Sports Medicine Staff, as well as the Equipment Managers.
  b. The following sports will be carefully observed by the team athletic trainer for signs of problems with a helmet:
    - Football
    - Men’s & Women’s Hockey
    - Men’s Lacrosse
    - Baseball
    - Softball
  c. Items to check with an athlete’s helmet to assure safety include, but are not limited to:
    - Chin straps must be buckled
    - No cracks or damaging chips in the helmet
    - No damage to the facemask
    - No missing screws/replace missing screws
    - All clips are secured and/or replaced if needed
    - The helmet is stable on the athlete’s head with no movement
    - The helmet appears to fit allowing for proper vision
    - Presence of the appropriate equipment standard seal and warning stickers
  d. All student-athletes on the football, men’s lacrosse, ice hockey, baseball and softball teams must read, sign,
and accept the standards set for on the NOCSAE form *(Appendix K)*. They must do this yearly.

- While the NCAA does require institutions and coaches to abide by specific guidelines to promote safety in sport, at Holy Cross, The Sports Medicine Department, along with the Athletics Compliance Office, understand that our coaches do follow these guidelines, including, but not limited to:
  - Adherence to Inter-Association Consensus: Year Round Football Practice Contact Guidelines
  - Adherence to Inter-Association Consensus: Independent Medical Care Guidelines

- Coaches are required to enforce proper safety techniques to attempt to reduce the risk of head injury by:
  - Teaching "heads up tackling"
  - Correcting technique during practice
  - Planning practices to be "safety first"
The College of the Holy Cross
Policy on Mild Traumatic Brain Injury/Concussion
Student-Athlete Concussion Education and Policy

ALL STUDENT-ATHLETES PLEASE READ AND SIGN

The NCAA is committed to the prevention, identification, evaluation and management of concussions. The NCAA’s latest step in the process to develop a consistent association-wide approach to concussion management has come from the NCAA Executive Committee. The Executive Committee adopted the following policy for institutions across all three divisions.

"Institutions shall have a concussion management plan on file such that a student-athlete who exhibits signs, symptoms or behaviors consistent with a concussion shall be removed from practice or competition and evaluated by an athletics healthcare provider with experience in the evaluation and management of concussion. Student-athletes diagnosed with a concussion shall not return to activity for the remainder of that day. Medical clearance shall be determined by the team physician or their designee according to the concussion management plan. In addition, student-athletes must sign a statement in which they accept the responsibility for reporting their injuries and illnesses to the institutional medical staff, including signs and symptoms of concussions. During the review and signing process student-athletes should be presented with educational material on concussions."

The policy came from ongoing review of research data and discussions with the medical community. Determination of appropriate care and treatment of student-athletes injuries and illness are best handled through a local institutional medical model that has team physician oversight and direction. This model should focus on appropriate access to healthcare providers with the unchallengeable authority to determine management and return-to-play.

☐ I have read and understand the above, the College of the Holy Cross Student-Athlete Concussion Education and Policy.
☐ I have read the NCAA Concussion Fact Sheet for Student-Athletes, as provided by the College of the Holy Cross.
☐ I agree to follow the rules and protocols of the College of the Holy Cross Sports Medicine Policy on Management of Mild Traumatic Brain Injury/Concussion if suspected or diagnosed with a concussion.
☐ If a concussion evaluation is warranted I agree to answer all questions honestly.
☐ I agree to accept the responsibility to report all injuries and illnesses, including signs and symptoms of concussions while participating in Intercollegiate Athletics at the College of the Holy Cross.
☐ I will complete the Initial 2 part concussion assessment survey (Impact Concussion Assessment and Sport Concussion Assessment Tool 3) before beginning my Athletic season.

Acceptance of Risk: The College of the Holy Cross, in compliance with NCAA guidelines, reminds its student athletes of the inherent risks of injury and MBI during intercollegiate athletic participation. The College of the Holy Cross, and its athletic administrators, coaches and sports medicine staff, share the management of these risks by endeavoring to create a safe environment for competition. For their part, student athletes are strongly advised to adhere to their coaches’, athletic trainers’ (and associated physicians’) health and safety instructions, including the rules of their sport, while participating in contests, practices, training sessions and related travel to effectively reduce the risks of injury.

PRINT NAME OF STUDENT-ATHLETE: _____________________________ SPORT: _____________________________

SIGNATURE OF STUDENT-ATHLETE: _____________________________ DATE: _____________________________

PRINT NAME OF PARENT/GAURDIAN (if minor): _____________________________

PARENT/GAURDIAN SIGNATURE (if minor): _____________________________ RELATIONSHIP: _____________________________
What is a concussion?
A concussion is a type of traumatic brain injury. It follows a force to the head or body and leads to a change in brain function. It is not typically accompanied by loss of consciousness.

How can I keep myself safe?
1. Know the symptoms.
   - Headache or head pressure
   - Nausea
   - Balance problems or dizziness
   - Double or blurry vision
   - Sensitivity to light or noise
   - Feeling sluggish, hazy or foggy
   - Confusion, concentration or memory problems

2. Speak up.
   - If you think you have a concussion, stop playing and talk to your coach, athletic trainer or team physician immediately.

3. Take time to recover.
   - Follow your team physician and athletic trainer’s directions during concussion recovery. If left unmanaged, there may be serious consequences.
   - Once you’ve recovered from a concussion, talk with your physician about the risks and benefits of continuing to participate in your sport.

How can I be a good teammate?
1. Know the symptoms.
   - Appears dazed or stunned
   - Forgets an instruction
   - Is confused about an assignment or position
   - Is unsure of the game, score or opponent
   - Appears less coordinated
   - Answers questions slowly
   - Loses consciousness

2. Encourage teammates to be safe.
   - If you think one of your teammates has a concussion, tell your coach, athletic trainer or team physician immediately.
   - Help create a culture of safety by encouraging your teammates to report any concussion symptoms.

   - If one of your teammates has a concussion, let him or her know you and the team support playing it safe and following medical advice during recovery.
   - Being unable to practice or join team activities can be isolating. Make sure your teammates know they’re not alone.

No two concussions are the same. New symptoms can appear hours or days after the initial impact. If you are unsure if you have a concussion, talk to your athletic trainer or team physician immediately.
What happens if I get a concussion and keep practicing or competing?

- Due to brain vulnerability after a concussion, an athlete may be more likely to suffer another concussion while symptomatic from the first one.
- In rare cases, repeat head trauma can result in brain swelling, permanent brain damage or even death.
- Continuing to play after a concussion increases the chance of sustaining other injuries too, not just concussion.
- Athletes with concussion have reduced concentration and slowed reaction time. This means that you won't be performing at your best.
- Athletes who delay reporting concussion take longer to recover fully.

What are the long-term effects of a concussion?

- We don't fully understand the long-term effects of a concussion, but ongoing studies raise concerns.
- Athletes who have had multiple concussions may have an increased risk of degenerative brain disease and cognitive and emotional difficulties later in life.

What do I need to know about repetitive head impacts?

- Repetitive head impacts mean that an individual has been exposed to repeated impact forces to the head. These forces may or may not meet the threshold of a concussion.
- Research is ongoing but emerging data suggest that repetitive head impact also may be harmful and place a student-athlete at an increased risk of neurological complications later in life.

Did you know?

- NCAA rules require that team physicians and athletic trainers manage your concussion and injury recovery independent of coaching staff, or other non-medical, influence.
- We’re learning more about concussion every day. To find out more about the largest concussion study ever conducted, which is being led by the NCAA and U.S. Department of Defense, visit ncaa.org/concussion.

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**CONCUSSION TIMELINE**

**Baseline Testing**
Balance, cognitive and neurological tests that help medical staff manage and diagnose a concussion.

**Concussion**
If you show signs of a concussion, NCAA rules require that you be removed from play and medically evaluated.

**Recovery**
Your school has a concussion management plan, and team physicians and athletic trainers are required to follow that plan during your recovery.

**Return to Learn**
Return to school should be done in a step-by-step progression in which adjustments are made as needed to manage your symptoms.

**Return to Play**
Return to play only happens after you have returned to your pre-concussion baseline and you've gone through a step-by-step progression of increasing activity.

For more information, visit ncaa.org/concussion.

NCAA is a trademark of the National Collegiate Athletic Association.
### What is a concussion?
A concussion is a type of traumatic brain injury. It follows a force to the head or body and leads to a change in brain function. It is not typically accompanied by loss of consciousness.

### How can I tell if an athlete has a concussion?
**You may notice the athlete ...**
- Appears dazed or stunned
- Forgets an instruction
- Is confused about an assignment or position
- Is unsure of the game, score or opponent
- Appears less coordinated
- Answers questions slowly
- Loses consciousness

**The athlete may tell you he or she is experiencing ...**
- A headache, head pressure or that he or she doesn’t feel right following a blow to the head
- Nausea
- Balance problems or dizziness
- Double or blurry vision
- Sensitivity to light or noise
- Feeling sluggish, hazy or foggy
- Confusion, concentration or memory problems

Note that no two concussions are the same. All possible concussions must be evaluated by an athletic trainer or team physician.

### What can I do to keep student-athletes safe?

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<td>Create a culture in which concussion reporting is encouraged and promoted.</td>
<td>Know the signs and symptoms of concussions.</td>
<td>Remove athletes from play immediately if you think they have a concussion and refer them to the doctor or athletic trainer.</td>
<td>Follow the recovery and return-to-play protocol established by the team physician and athletic trainers.</td>
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| **Why does it matter?**
Athletes who don’t immediately seek care for a suspected concussion take longer to recover. The more people who know what to look for in a concussed athlete, the more likely a concussion will be identified. Early removal from play can mean a quicker recovery and help avoid serious consequences. Team physicians and athletic trainers have the training to follow best practices related to the concussion recovery process. |

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<td>Be present when your team physician or athletic trainer provides concussion education material to your team. Tell your team that this matters to you.</td>
<td>Check in with your team physician or athletic trainer if you want to learn more about concussion safety.</td>
<td>Provide positive reinforcement when an athlete reports a suspected concussion.</td>
<td>Tell athletes that decisions related to their return to play and health are entirely in the hands of the team physician and athletic trainer.</td>
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You play a powerful role in setting the tone for concussion safety on your team. Let your team know that you take concussion seriously and reporting the symptoms of a suspected concussion is an important part of your team’s values.
What happens if an athlete gets a concussion and keeps practicing or competing?

- Due to brain vulnerability after a concussion, an athlete may be more likely to suffer another concussion while symptomatic from the first one.
- In rare cases, repeat head trauma can result in brain swelling, permanent brain damage, or even death.
- Continuing to play after a concussion increases the chance of sustaining other injuries too, not just concussion.
- Athletes with a concussion have reduced concentration and slowed reaction time. This means they won’t be performing at their best.
- Athletes who delay reporting concussion may take longer to recover fully.

What are the long-term effects of a concussion?

- We don’t fully understand the long-term effects of a concussion, but ongoing studies raise concerns.
- Athletes who have had multiple concussions may have an increased risk of degenerative brain disease, and cognitive and emotional difficulties later in life.

What do I need to know about repetitive head impacts?

- Repetitive head impacts mean that an individual has been exposed to repeated impact forces to the head. These forces may or may not meet the threshold of a concussion.
- Research is ongoing but emerging data suggest that repetitive head impact also may be harmful and place a student-athlete at an increased risk of neurological complications later in life.

Did you know?

- Most contact or collision teams have at least one student-athlete diagnosed with a concussion every season.
- Your school has a concussion management plan, and team physicians and athletic trainers are expected to follow that plan during a student-athlete’s recovery.
- NCAA rules require that team physicians and athletic trainers have the unchallengeable authority to make all medical management and return-to-play decisions for student-athletes.
- We’re learning more about concussion every day. To find out more about the largest concussion study ever conducted, which is being led by the NCAA and U.S. Department of Defense, visit ncaa.org/concussion.

For more information, visit ncaa.org/concussion.

NCAA is a trademark of the National Collegiate Athletic Association.
Positive Concussion History Follow-Up Questions

Please fill out the following questions if you have been diagnosed with a concussion.

1. Have you been hit in the head and been confused or lost your memory?

2. Have you ever had numbness, tingling, or weakness in your arms or legs after being hit or falling?

3. Have you ever been unable to move your arms or legs after being hit or falling?

4. Have you ever had a seizure?

5. When was your head injury/were your head injuries?

6. Were you able to finish the practice or game in which the injury was sustained?

7. Did you miss any practices or games due to the injury?

8. What was the nature and duration of your concussive symptoms?

9. Did you have lingering symptoms?

10. Did this head injury affect your performance in school? If so, to what degree?

11. Were you hospitalized for any head injury?

12. Were you referred to a primary care provider?

13. Was adjunct testing (neuropsychological, postural, etc.) used?

14. Did you have imaging tests (X-rays, CT-scans, etc.) done?
Abbreviated Sport Concussion Assessment Tool 5

Instructions: To be completed during Pre-Participation Physicals as part of a comprehensive concussion baseline screening

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

Has the athlete ever been:

Hospitalized for a head injury? Yes No
Diagnosed / treated for headache disorder or migraine? Yes No
Diagnosed with a learning disability / dyslexia? Yes No
Diagnosed with ADO / ADHD? Yes No
Diagnosed with depression, anxiety or other psychiatric disorder? Yes No
Current medications? If yes, please list:

<table>
<thead>
<tr>
<th></th>
<th>none</th>
<th>mild</th>
<th>moderate</th>
<th>severe</th>
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<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

Modified Balance Error Scoring System (mBESS) testing5

Which foot was tested (i.e. which is the non-dominant foot) Left Right
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 foot)</td>
<td>of 10</td>
</tr>
<tr>
<td>Tandem stance (non-dominant foot at the back)</td>
<td>of 10</td>
</tr>
<tr>
<td>Total Errors</td>
<td>of 30</td>
</tr>
</tbody>
</table>
MTBI MANAGEMENT INFORMATION

Guidelines for Return to Play
- An athlete is NOT permitted to return to play in the same day of sustaining a concussion.
- Athletes should be asymptomatic at rest.
- Athletes must be asymptomatic for 24 hours before they can begin the return to play (RTP) protocol. The RTP protocol is 5 to 6 days and includes, cardiovascular exertion testing, strength testing, sport specific skills and drills, and non-contact drills, before the athlete is allowed.He/she should remain out of activities that increase risk for recurrent head injury until at least day 5 of the graduated return-to-play protocol.
- If recurrent injury occurs, the athlete should be held from activity for 7 days after symptoms resolve before the graduated return-to-play protocol.
- All concussed athletes will be evaluated by a sports medicine physician prior to any full return to play.

Guidelines for Immediate Referral to Emergency Department:
The athlete should be transported immediately to the nearest emergency department if the following symptoms are experienced:
- Deterioration of neurologic function
- Decreasing level of consciousness
- Decrease or irregularity in respirations
- Decrease or irregularity in pulse
- Unequal, dilated, or unreactive pupils
- Any signs or symptoms of associated injuries, spine or skull fracture
- Mental status changes that continue to progress: lethargy, difficulty maintaining arousal, confusion, or agitation
- Seizure activity

Guidelines for Same Day Physician Referral:
On the day of injury if patient experiences any of the following:
- Loss of consciousness
- Amnesia longer than 15 minutes
- Increase in blood pressure
- Cranial nerve deficits subsequent to the initial on-field evaluation
- Vomiting
- Motor deficits subsequent to initial on-field assessment
- Sensory deficits subsequent to initial on-field assessment
- Balance deficits subsequent to initial on-field assessment
- Post-concussive symptoms that worsen
- Symptoms persistent through the end of a practice or game

Guidelines for Athlete Disqualification
- On the day of concussive event
- Permanent disqualification will be determined and discussed with the student-athlete, parents (if a minor), athletic trainer, and physician
- A team physician, in coordination with the above individuals, has the final decision on return to play for student-athletes at Holy Cross. Outside or home physician evaluations sought by the student-athlete/family will be reviewed and put into context of the injury. Non-Holy Cross-associated physicians will not determine return to play for Holy Cross student-athletes.
# SCAT5®

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

DEVELOPED BY THE CONCUSSION IN SPORT GROUP
FOR USE BY MEDICAL PROFESSIONALS ONLY

supported by

| FIFA | Olympic | NCAA | FEI |

## Patient details

| Name: | ____________________ |
| DOB: | ____________________ |
| Address: | ____________________ |
| ID number: | ____________________ |
| Examiner: | ____________________ |
| Date of Injury: | ____________________ | Time: | ____________________ |

## WHAT IS THE SCAT5?

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

RED FLAGS:

- Neck pain or tenderness
- Double vision
- Weakness or tingling/numbness 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

Witnessed □ Observed on Video □

Using remote learning on the playing surface

Balance / gait difficulties / motor incoordination/ stumbling / imbalance

Disorientation or confusion, or inability to respond appropriately to questions

Blank or vacant look

Facial injury or head injury

STEP 3: MEMORY ASSESSMENT MADDOCKS QUESTIONS

"I went to ask you a few questions, please focus carefully and give your best effort. Tell me what happened?"

Mark Y for correct answer / N for incorrect

What were we at today? Y N

What time is it now? Y N

What day is it today? Y N

Who scored last in this match? Y N

What team did you play last season? Y N

Did your team win the last game? Y N

Note: Appropriate sport-specific questions may be substituted.

STEP 4: EXAMINATION

GLASGOW COMA SCALE (GCS)

Time of assessment

Date of assessment

Move eyes in response (E)

Move eyes in response to pain

Move eyes in response to speech

Move eyes opening spontaneously

Best verbal response (V)

No verbal response

Incomprehensible sounds

Inappropriate words

Confused

Oriented

Best motor response (M)

No motor response

Extension to pull

Abnormal flexion to pain

FlexionWithdrawal to pain

Locomotor to pain

Glasgow Coma score (E + V + M)

CERVICAL SPINE ASSESSMENT

Does the athlete report that their neck is pain 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

In a patient who is not lucid or fully conscious, a cervical spine injury should be assumed until proven otherwise.
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 / disorder or migraine?: Yes No
- Diagnosed with a learning disability / dyslexia?: Yes No
- Diagnosed with ADHD / ADD?: 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 the instruction paragraph out loud then complete the symptom scale. For the baseline assessment, the athlete should fill in the symptom scale based on how he feels typically feels and for the post-injury assessment, the athlete should rate how they feel at the time of assessment.

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>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&quot;Pressure behind&quot;</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neck Pain</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dizziness</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Balance problems</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sensitivity to light</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sensitivity to noise</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Feeling slowed down</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Feeling like &quot;In a fog&quot;</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&quot;Dizzy spells&quot;</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Difficulty concentrating</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Difficulty remembering</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fatigue or low energy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concentration</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Depression</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>More emotional</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Irritability</td>
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<td>Sleeplessness</td>
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<td>0</td>
</tr>
<tr>
<td>Nervous or Anxious</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Trouble falling asleep</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Total number of symptoms: __________ of 22
Symptom severity score: __________ of 22

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?

70% __________ 80% __________ 90% __________ 100% __________

Please hand form back to examiner

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853
**STEP 4: NEUROLOGICAL SCREEN**

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

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

**BALANCE EXAMINATION**

Modified Balance Error Scoring System (mBESS) testing

<table>
<thead>
<tr>
<th>Condition</th>
<th>Errors</th>
<th>of 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double leg stance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single leg stance (non-dominant leg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tandem stance (non-dominant leg at the back)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Errors</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Time Started</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of words recalled accurately:</td>
<td>of 5 or</td>
</tr>
</tbody>
</table>

**STEP 6: DECISION**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Date &amp; time of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom number (of 22)</td>
<td></td>
</tr>
<tr>
<td>Symptom severity score (of 12)</td>
<td></td>
</tr>
<tr>
<td>Orientation (of 3)</td>
<td></td>
</tr>
<tr>
<td>Immediate memory (of 15)</td>
<td>of 15</td>
</tr>
<tr>
<td>Concentration (of 15)</td>
<td>of 15</td>
</tr>
<tr>
<td>Neuropsych</td>
<td>Normal</td>
</tr>
<tr>
<td>Balance errors (of 30)</td>
<td>of 5</td>
</tr>
<tr>
<td>Delayed Recall</td>
<td>of 5</td>
</tr>
</tbody>
</table>

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*

Conclusion: Diagnosed?

- Yes
- No
- Unsure
- Not Applicable

*If unfitness, 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 SCATS.

Signature: ____________________

Date: ____________________

Registration number (if applicable): ____________________

**SCORING ON THE SCATS 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.**

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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.

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Contact details or stamp

Clinic phone number:

Patient's name:

Date / time of injury:

Date / time of medical review:

Healthcare Provider:

Name:
DOB:
Address:
ID number:
Examiner:
Date:
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. A baseline test should be given to assess how an athlete's symptoms are typically low. During the acute/post-acute stage is it 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 other than exercise, it should be done in a resting state, generally by approximating the resting heart rate.

For total number of symptoms, maximum possible is 22 except immediately post injury. If sleep is not disturbed, then which creates a maximum of 21.

For Symptom severity score, add scores in table, maximum possible is 22 x 6 = 132, except immediately post injury if sleep is not disturbed, which then creates a maximum of 21.

**Immediate Memory**

The immediate memory component can be completed using the traditional 5-word per trial test, or optionally, using 10 words per trial. The literature suggests that the Immediate Memory Test has a reliable ceiling effect, where each word is learned in settings where this ceiling is prominent, the examinee may wish to modify the task score difficulty 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 maximum score of 56.

Choose one of the word lists (either 1 or 2). 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, exact word the words word by word, then put a word at a time to one word second.

Trials 1 & 2:

*I am going to repeat the same list again.* Repeat back as many words as you can remember in any order, exact word the words word by word, then put a word at a time to one word second.

Score 1 pt. for each correct response. Total score equals score across all 2 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 will repeat them back to me in reverse order of how I read them to you. For example, if I say 7, 3, 1, you would say 1, 3, 7.

Begin with first 3 digit string.

If correct, circle Y for correct, circled X for incorrect, 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 X's) in a string length. The digits should be read at the rate of one per second.

Months in reverse order

"Now will we the months of the year in reverse order. Start with the last month and go backwards. So you'll say December, November... Go ahead!"

1 pt. for each correct response.

**Delayed Recall**

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

"Do you remember the list of words you heard earlier?" Tell 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 is scored by counting the number of errors. The examiner will begin counting errors 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 each single condition is 10. If the athlete commits multiple errors simultaneously, only one error is scored for the athlete should complete two more returns 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 60 seconds at the start are assigned the highest possible score, i.e., for that particular condition, e.g., approximately 50-centimeter x 40-centimeter x 3 cm.

**Balance testing – types of errors**

1. Hands lifted off
2. Step, stumble, or fall
3. Lifting forehead or heel
4. Moving hips in > 90 degrees abduction
5. Reaching back past legs above ankles (if applicable), and removing any athletic tape (if applicable).

**Tandem Gait**

Participants are instructed to stand with their feet together behind a starting line (the tips to be placed on the toe). They then walk in a forward direction as quickly and as accurately as possible along a linear (stabilized line). Three lines with an alternating foot back-to-back test gait ensuring that they approximate their heel and toe on each step. Once they cross the end of the line, they return to the starting point by using the same gait. Athletes fail the test if they step off the line. A score of 1 is awarded when their heel and toe cross the line, or if they touch or grab the examiner or the examining line.

**Finger to Nose**

The nose is a test to assess your coordination. Please sit comfortably on a chair with your eyes open and your arm (either right or left) extended (shoulder flexed to 90 degrees and elbow and fingers extended), pointing in front of you. When you get a start signal, you will be asked to perform a sequence of finger to nose experiences using your non-dominant finger to touch the tip of the nose, and then to 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 behavior or confusion
- Seizures (arms and/or legs uncontrolled)
- Weakness or numbness in arms or legs
- Unsteadiness on their feet
- Sudden speech

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, especially if no more than a few days of rest, the athlete should gradually increase their daily activity levels 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. 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>3. Sport-specific exercise</td>
<td>Running or drilling skills that do not involve impact.</td>
<td>Add movement.</td>
</tr>
<tr>
<td>4. Non-contact training skills</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>

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 changes made to their schedule so that concussion symptoms do not get worse. If a particular activity makes symptoms worse, 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 that do not give the athlete symptoms</td>
<td>Typical activities that the athlete does during the day as long as they do not increase symptoms (e.g., reading, talking, screen time). Start with 0-10 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 of school work. May need to start with minimal school work 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 only going to certain classes
- Taking lots of breaks during class, homework, tests
- More time to finish assignments/tests
- Quiet room to finish assignments/tests
- Not going to noisy areas like the cafeteria, assembly hall, sporting events, music class, shop class, etc.

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.

Written clearance should be provided by a healthcare professional before return to play/sport as directed by local laws and regulations.
# Graduated Return to Play Protocols for Contact and Non-Contact Sports

**Contact Sports:** (Football, Basketball, Ice Hockey, Lacrosse, Soccer)

**Non-Contact Sports:** (Baseball, Crew, Cross Country, Field Hockey, Golf, Softball, Swimming/Diving, Tennis, Track & Field, Volleyball)

<table>
<thead>
<tr>
<th>Stage of Rehabilitation</th>
<th>Daily Activities</th>
<th>Recommended Exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1</strong>: asymptomatic 24hrs</td>
<td>NONE</td>
<td>NONE</td>
</tr>
</tbody>
</table>
| **Stage 2**: HR= 30-40% max  
- Exercise in a quiet area | - Light aerobic activity (15min)  
- Sub-max isometric strengthening & gentle isotonic  
- ROM/stretching  
- Low level balance activities | - Stationary bike, UBE, treadmill walking  
- Quad/ham sets, UE- light hand weights, band rows, LE- SLR, ankle bands  
- Passive stretching LE & UE  
- Romberg exercises, SL balance |
| **Stage 3**: HR= 40-60%  
- Exercise in gym areas  
- Use different equipment  
- Allow positional changes & head movement | - Light-mod. Aerobic activity (20-30min)  
- Light wt. exercises  
- Active stretching  
- Mod. Balance w. head movement | - Treadmill, stationary bike, elliptical, UBE  
- Light wt. strength exer, band exer, wall squats, lunges, steps  
- Dynamic stretching  
- Romberg exer, core exer, SL balance |
| **Stage 4**: HR= 60-80%  
- Any environment exercise  
- Integrate strength, conditioning, balance/proprioceptive exercise | - Moderate-aggressive aerobic exer.  
- All strength exer @80% max  
- Active stretching  
- Agilities, plyometrics  
- Proprioceptive/dynamic balance  
- Non-contact sport specific training | - Treadmill (jogging), stationary bike, elliptical, UBE  
- Free weights, squats, dynamic strength exer.  
- Dynamic stretching,  
- Zig-zag runs, side shuffle  
- Box jumps, UE & core plyos.  
- High level balance on discs, trampoline, BOSU |
| **Stage 5**: HR= 80%max  
- Aggressive training in all areas  
- Limited contact activities | - Limited-contact training  
- Aggressive strength exer.  
- Impact activities/plyometrics  
- Sport specific activities w/light contact | - Sport specific drills monitored by an AT to assure appropriate limited contact activities |
| **Stage 6**: Full exertion  
- Full contact/scrimmage as appropriate in a practice setting | - Resume full physical training activities w/ contact as appropriate  
- Continue aggressive strength & conditioning  
- Sport specific activities | - Sport specific drills monitored by an AT to assure appropriate limited contact activities |
College of the Holy Cross Home Care Instructions for Potentially Concussed Athlete

I believe that________________________ sustained a concussion on _______________. To make sure he/she recovers, please follow the following important recommendations:

1) Please remind____________________ to report to the Athletic Training Room on_______________ at _____________ for a follow-up evaluation.

2) Please **review the checklist below.** If any of these problems develop prior to his/her visit, please get the patient to a physician immediately or contact the local emergency medical system as necessary. If living in a Holy Cross dormitory, call Public Safety’s Emergency line: 508-793-2222 (x2222 from a school phone).
   - Deterioration of neurologic function
   - Decreasing level of consciousness
   - Decrease or irregularity in respirations (ability to breathe)
   - Decrease or irregularity in pulse
   - Unequal, dilated, or unreactive pupils
   - Signs or symptoms of associated injuries, spine or skull fracture, or bleeding
   - Mental status changes: lethargy, difficulty maintaining arousal, confusion, or agitation
   - Seizure activity

3) It is **OK** for the patient to do the following:
   - Use acetaminophen (Tylenol) for headaches
   - Use ice pack on head/neck as needed for comfort
   - Eat a light diet
   - Return to school, as permissible by team physician
   - Go to sleep
   - Rest (no strenuous activity or sports)

4) There is **NO need** for the patient to do the following:
   - Check eyes with flashlight
   - Wake up every hour
   - Test reflexes
   - Stay in bed

5) **DO NOT:**
   - Drink alcohol
   - Eat spicy foods
   - Take ibuprofen, Motrin, or aspirin unless otherwise instructed

6) It is **recommended** that you **do not:**
   - Spend a great amount of time texting/staring at your cell phone screen
   - Watch a lot of TV/DVDs
   - Listen to loud music
   - Spend a lot of time staring at your lap top/computer screen
   - Cram your school work into a small period of time

SIGNATURE OF AT:__________________________________________DATE:_______________________________________
## Graded Symptom Scale Checklist

*Modified from various published symptom checklists*[^2][^30]

Evaluate all signs and symptoms, ranking each on a scale of 0-6. Establish baseline score prior to the start of the athletic season. After a concussive injury, re-assess the athlete for each symptom. Add columns and compare to baseline score. Only consider return to activity if scores are comparable to baseline score. Continue testing every 2-3 days if symptoms do not resolve. Use with SAC and/or BESS to determine appropriate time for return to play.

<table>
<thead>
<tr>
<th>Score According to Severity</th>
<th>None</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
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<td>2</td>
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<td>6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Symptom</th>
<th>None</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blurred Vision</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dizziness</td>
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<td></td>
<td></td>
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<tr>
<td>Drowsiness</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sleeping More than Usual</td>
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<td></td>
<td></td>
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<tr>
<td>Easily Distracted</td>
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<tr>
<td>Fatigue</td>
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<td></td>
</tr>
<tr>
<td>Feeling “In a Fog”</td>
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<tr>
<td>Feeling “Slowed Down”</td>
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<td></td>
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<tr>
<td>Headache</td>
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<td></td>
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<tr>
<td>Unusually Emotional</td>
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<td></td>
<td></td>
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<tr>
<td>Irritability</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Loss of Consciousness</td>
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<td></td>
<td></td>
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<tr>
<td>Loss of Orientation</td>
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<td></td>
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<tr>
<td>Memory Problems</td>
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<td></td>
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<tr>
<td>Nauseous</td>
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<td></td>
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<tr>
<td>Nervousness</td>
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<td></td>
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<tr>
<td>Personality Changes</td>
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<tr>
<td>Poor Balance/Coordination</td>
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<tr>
<td>Ringing in the Ears</td>
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<tr>
<td>Sadness</td>
<td></td>
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<tr>
<td>Seeing Stars</td>
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<td></td>
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<tr>
<td>Sensitivity to Light</td>
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<tr>
<td>Sensitivity to Noise</td>
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<td></td>
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<tr>
<td>Sleep Disturbances</td>
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<td></td>
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</tr>
<tr>
<td>Vacant Stares/ Glassy Eyes</td>
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<td></td>
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<tr>
<td>Vomiting</td>
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</tbody>
</table>

**TOTAL SYMPTOM SCORE:**
Helmet Care and Use Statement

For: Football/Ice Hockey/Men's Lacrosse/Baseball/Softball Athletes

The following statement is from the NOCSAE approved guidelines. Please read it carefully and sign your name on the bottom of this sheet.

DO NOT USE THIS HELMET TO BUTT, RAM, OR SPEAR AN OPPOSING PLAYER. THIS IS IN VIOLATION OF THE FOOTBALL RULES AND MAY RESULT IN SEVERE HEAD, BRAIN, OR NECK INJURY, PARALYSIS OR DEATH TO YOU AND POSSIBLE INJURY TO YOUR OPPONENT.

THERE IS A RISK THESE INJURIES MAY OCCUR AS A RESULT OF ACCIDENTAL CONTACT WITHOUT INTENT TO BUTT, RAM, OR SPEAR.

NO HELMET CAN PREVENT ALL SUCH INJURIES.

MAINTENANCE OF CORRECT FITTING IS ESSENTIAL TO THE USE OF ALL PROTECTIVE EQUIPMENT. FOOTBALL HELMETS ESPECIALLY MUST BE PROPERLY FITTED AND PROPERLY MAINTAINED IF THEY ARE TO SERVE THE PLAYER.

I have read the above statement and understand what the consequences are should I fail to adhere to the proper use of this protective equipment.

PRINT NAME OF STUDENT-ATHLETE: __________________________________________________________

SIGNATURE OF STUDENT-ATHLETE: ___________________________ DATE: ___________________