

***Policy on Management of
Sport-Related Concussion***



***College of the Holy Cross
Sports Medicine***



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The College of the Holy Cross is committed to protecting the health of and providing a safe environment for each of its participating NCAA student-athletes. To this end, and in accordance with NCAA legislation, The College of the Holy Cross has adopted the following Concussion Safety Protocol for all NCAA student-athletes. The document reflects the best practices recommended by the NCAA and the Patriot League for management of sports-related concussions and is intended, and should be construed, to comply with the member institution obligations set for in the operative settlement agreement in the Arrington v. NCAA Case No. 13-cv-09116 (N.D.III). This protocol identifies expectations for institutional concussion management practices as they relate to:

1. Definition of Sport-Related Concussion
2. Independent Medical Care
3. Preseason Education
4. Pre-Participation Assessment
5. Recognition and Diagnosis
6. Initial Suspected Concussion Evaluation
7. Post-Concussion Management
8. Return-to-Learn
9. Return-to-Sport
10. Limiting Exposure to Head Trauma
11. Written Certificate of Compliance Signed By the Athletics Healthcare Administrator

1. Definition: Sport-Related Concussion

The Consensus Statement on Concussion in Sport, which resulted from the 5th International Conference on Concussion in Sport, defines sport-related concussion as follows:

Sport-related concussion (SRC) is a traumatic brain injury induced by biomechanical forces. Several common features that may be utilized to clinically define the nature of a concussion head injury include:

- SRC 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.
- SRC typically results in the 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.
- SRC may result in neuropathological changes, but the acute clinical signs and symptoms largely reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies.
- SRC results in a range of clinical signs and symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.
- The clinical signs and symptoms cannot be explained by drug, alcohol or medication use, other injuries (such as cervical injuries, peripheral vestibular dysfunction, etc.) or other comorbidities (e.g., psychological factors or coexisting medical conditions).



The following are operational steps and treatment orders for the management of SRC 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.

2. Independent Medical Care

As required by NCAA Independent Medical Care (IMC) legislation, team physicians and athletic trainers shall have unchallengeable autonomous authority to determine medical management and return-to-activity decisions, including those pertaining to concussion and head trauma injuries, for all student-athletes. The designated Athletics Health Care Administrator, per the IMC legislation, at the College of the Holy Cross is the Head Athletic Trainer. Prior to each academic year, the Athletic Health Care Administrator and Team Physician review, update, and agree on the protocol for managing SRC, in order to educate the Sports Medicine Staff and the Athletic Department on best practices.

3. Preseason Education:

On an annual basis and prior to participation, all NCAA student-athletes will be required to sign an acknowledgement form, *College of the Holy Cross Student-Athlete Sports-Related Concussion Responsibility Statement (Appendix A)*, that they have been provided, reviewed and understood the concussion education material, which will be held on record in their electronic medical record (EMR).

The educational materials that are provided include:

- The NCAA Concussion Education Fact Sheet for Student-Athletes (**Appendix B**)
- CFM Concussion Training Module

All coaches, athletic directors, athletic trainers, team physicians (including Sports Medicine Fellowship Physicians), and student first responders, must be and are trained in the diagnosis, treatment and management of concussions, including the seriousness of a possible SRC, the use of this policy, and the NCAA policy disqualifying an athlete from play on the same day as a suspected SRC. This team of athletics personnel involved in NCAA student-athlete health and safety decision making will be provided and allowed an opportunity to discuss educational material including:

- NCAA Concussion Education Fact Sheet for Coaches (**Appendix C**)
- CFM Concussion Training Module

Athletic department personnel will be required to sign an acknowledgement, on an annual basis, that they have been provided, reviewed and understood the concussion education material.

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.”

Upon completion, all athletic personnel will have an understanding for their responsibility to report any possible SRC to the medical staff.

Completion of this program (by student-athletes, coaches, athletic directors, Athletic Trainers, physicians and student first responders) is tracked and recorded by a member of the Athletic Department’s Administration to ensure an electronic signature has been received. The electronic signature then serves as the signed acknowledgement of the responsibility with the concussion material.

4. 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 SRC 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 history of concussion or brain injury, neurologic disorder, and mental health symptoms and disorders.
 - More conservative treatment, as coordinated with and by a team physician, should be provided to the concussed athlete with a medical history of SRC or related injury.
 - Furthermore, these identified student-athletes may require reevaluation within the following 6 months.
- All student-athletes are required to complete the annual baseline testing prior to the beginning of athletic participation and document the completion of such testing on the SRC Responsibility Statement. Athletic trainers will implement and document baseline testing annually prior to the start of athletic seasons for every student-athlete using the online ImPACT Concussion Assessment tool. Student-athletes who are members of defined contact sports will also have annual, advanced baseline testing using the *abbreviated* Sport Concussion Assessment Tool 5 (**Appendix E**) concussion evaluation tool.
 - More information on ImPACT testing can be found on the ImPACT website:
<https://www.impacttest.com/about/>

5. Recognition and Diagnosis of Concussion:

- All members of the Sports Medicine staff are trained in the diagnosis, treatment and initial management of acute concussions.
- 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 SRC



Management Information sheet (**Appendix F**).

- A member of the Sports Medicine staff is “present” for home NCAA events and traditional season away events for contact/collision sports. Sports that are classified as contact/collision sports at The College of the Holy Cross include: baseball; (M/W) basketball; (M/W) diving; field hockey; football; (M/W) ice hockey; (M/W) lacrosse; (M/W) pole vault; (M/W) soccer; softball; volleyball. Per the NCAA concussion safety checklist, “to be present means to be on site at the campus or arena of the competition.” For nontraditional, away from home contests for contact sports, to which a member of the Holy Cross Sports Medicine Office does not travel with a team, a member of the Athletic Department (e.g., the designated Sport Administrator) must confirm, in advance of the contest and in writing (e.g., by email), that the host institution's will have a medical professional with training in the diagnosis, treatment, and management of concussions present at the contest, and that this medical professional will be available to Holy Cross team members if necessary.
- Additionally, a member of the sports medicine staff will be “available” at the following contact/collision practices: baseball; (M/W) basketball; (M/W) diving; field hockey; football; (M/W) ice hockey; (M/W) lacrosse; (M/W) pole vault; (M/W) soccer; softball; volleyball. The NCAA concussion safety task force 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.”
- Any NCAA student-athlete that exhibits signs, symptoms or behaviors consistent with concussion:
 - Must be removed from practice or competition for evaluation.
 - Must be evaluated by an athletic trainer or team physician (or physician designee) with concussion experience.
 - Must be removed from practice/play for that calendar day if concussion is confirmed or suspected.
 - May only return to play the same day if the athletic trainer, team physician or physician designee determines that concussion is no longer suspected.

6. Initial Suspected Concussion Evaluation

- Clinical evaluation should include a primary survey, and thorough secondary survey with a clinical assessment for cervical spine trauma, skull fracture, intracranial bleed and catastrophic injury as well as a physical and neurological exam.
- Furthermore, concussion screening during the clinical sideline evaluation will include use of the Sport Concussion Assessment Tool 5 (SCAT5) (**Appendix G**) to evaluate symptom assessment, cognitive assessment and balance exam.
 - 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.

7. 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.
- Specifically, when evaluating a sport-related concussion, the Sports Medicine staff will focus attention on:
 - The Glasgow Coma Scale <13 on initial assessment, or GCS <15 at 2 hours or more post-initial assessment.
 - Level of consciousness,
 - Focal neurological deficits, emesis
 - Diminished/worsening mental status/neurological signs/symptoms,
 - Spinal injury/involvement.
- 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 effects will regularly follow up with the team physician. Additional diagnoses may include, among others: fatigue and/or sleep disorder; migraine or other headache disorders; mental health symptoms and disorders; ocular dysfunction; vestibular dysfunction; cognitive impairment and autonomic dysfunction. Team physicians will refer these student-athletes to neurologists and/or neuropsychologists for further evaluation.

8. Return-to-Learn

- Returning to academic activities after a concussion is a parallel concept to returning to sport after concussion. Cognitive activities require brain energy utilization and after concussion, brain energy may not be available to perform normal cognitive exertion and function. The return-to-learn concept should follow an individualized and step-wise process overseen by a point person within the athletics department, who will navigate return-to-learn with the student-athlete
- A team physician must be informed of all concussed athletes promptly after the incident and diagnosis. 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 instructed to 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 SRC/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 Staff and the team physicians ensure compliance with the ADAAA by consulting with the Office of Accessibility Services. Questions regarding and relating to disabilities and any necessary services are fielded by the Office of Accessibility Services. Such so, the Office of Accessibility Services 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 may need to be made for the individual.
- Student-athletes are encouraged to reach out to their professors as well, to connect with them about any restrictions and modifications they may need while recovering from the concussion.

9. Return-to-Play

- Unrestricted return-to-sport should not occur prior to unrestricted return-to-learn for concussions diagnosed while the student-athlete is enrolled in classes.
- 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. No student-athlete may return to play without the express approval of the team physician or another duly designated physician. 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/Symptom-limited activity
 - 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 at any point the student-athlete becomes symptomatic (more symptomatic than baseline), the team physician or physician designee will be notified, and adjustments may be made to the return-to-sport progression



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

10. Limiting Exposure to Head Trauma

- The College of the Holy Cross is committed to protecting the health of and providing a safe environment for each of its participating NCAA student-athletes. To this end and in accordance with NCAA association-wide policy, Holy Cross will limit student-athlete head trauma exposure in a manner consistent with Interassociation Recommendations: Preventing Catastrophic Injury and Death in Collegiate Athletes. For example:
 - Holy Cross teams will adhere to existing ethical standards in all practices and competitions.
 - Using playing or protective equipment (including the helmet) as a weapon will be prohibited during all practices and competitions.
 - Deliberately inflicting injury on another player will be prohibited in all practices and competitions.
 - All playing and protective equipment (including helmets), as applicable, will meet relevant equipment safety standards and related certification requirements.
 - Holy Cross will keep the head out of blocking and tackling in contact/collision, helmeted practices and competitions.
- The Holy Cross Sports Medicine Office 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 SRC policy based upon the best practices set forth and guidelines for appropriate care of head injuries.
- Furthermore, the Sports Medicine Office, 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.
- 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 Office, 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

Student- Athlete Sports-Related Concussion Responsibility Statement

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-learn and return-to-play.

- I have read and understand the above, the College of the Holy Cross Student-Athlete Sports-Related 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 Sports-Related Concussions 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 required CFM Module
- I will complete the Initial 2 part concussion assessment survey (ImPACT Concussion Assessment and Sport Concussion Assessment Tool 5) before beginning my Athletic season.
 - o Following completion of the ImPACT test please write in your 12-digit ImPACT Passport ID Code that is generated at the completion of the Baseline exam.

IMPACT PASSPORT ID: _____

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 sports-related concussion 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.

You may experience ...

- 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.

You may notice that a teammate ...

- 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.

3. Support your injured teammates.

- 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.

CONCUSSION TIMELINE



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

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

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

What can I do to keep student-athletes safe?

	Preseason	In-Season	Time of Injury	Recovery
What can I do?	Create a culture in which concussion reporting is encouraged and promoted.	Know the signs and symptoms of concussions.	Remove athletes from play immediately if you think they have a concussion and refer them to the team physician or athletic trainer.	Follow the recovery and return-to-play protocol established by team physicians and athletic trainers.
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.
Tips and strategies	Be present when your team physician or athletic trainer provides concussion education material to your team. Tell your team that this matters to you.	Check in with your team physician or athletic trainer if you want to learn more about concussion safety.	Provide positive reinforcement when an athlete reports a suspected concussion.	Tell athletes that decisions related to their return to play and health are entirely in the hands of the team physician and athletic trainer.

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.

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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

Appendix E: Abbreviated Sport Concussion Assessment Tool 5

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:

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

Current medications? If yes, please list:

	none	mild		moderate		severe		
Headache	0	1	2	3	4	5	6	
"Pressure in head"	0	1	2	3	4	5	6	
Neck Pain	0	1	2	3	4	5	6	
Nausea or vomiting	0	1	2	3	4	5	6	
Dizziness	0	1	2	3	4	5	6	
Blurred vision	0	1	2	3	4	5	6	
Balance problems	0	1	2	3	4	5	6	
Sensitivity to light	0	1	2	3	4	5	6	
Sensitivity to noise	0	1	2	3	4	5	6	
Feeling slowed down	0	1	2	3	4	5	6	
Feeling like "in a fog"	0	1	2	3	4	5	6	
"Don't feel right"	0	1	2	3	4	5	6	
Difficulty concentrating	0	1	2	3	4	5	6	
Difficulty remembering	0	1	2	3	4	5	6	
Fatigue or low energy	0	1	2	3	4	5	6	
Confusion	0	1	2	3	4	5	6	
Drowsiness	0	1	2	3	4	5	6	
More emotional	0	1	2	3	4	5	6	
Irritability	0	1	2	3	4	5	6	
Sadness	0	1	2	3	4	5	6	
Nervous or Anxious	0	1	2	3	4	5	6	
Trouble falling asleep (if applicable)	0	1	2	3	4	5	6	
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.) _____

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



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



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 professionals¹. The SCAT5 cannot be performed correctly in less than 10 minutes.

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

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

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Recognise and Remove

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

Key points

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

Remember:

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

1

IMMEDIATE OR ON-FIELD ASSESSMENT

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

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

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

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

STEP 1: RED FLAGS

RED FLAGS:

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

STEP 2: OBSERVABLE SIGNS

Witnessed Observed on Video

	Y	N
Lying motionless on the playing surface	Y	N
Balance / gait difficulties / motor incoordination: stumbling, slow / laboured movements	Y	N
Disorientation or confusion, or an inability to respond appropriately to questions	Y	N
Blank or vacant look	Y	N
Facial injury after head trauma	Y	N

STEP 3: MEMORY ASSESSMENT MADDOCKS QUESTIONS²

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

Mark Y for correct answer / N for incorrect

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

Note: Appropriate sport-specific questions may be substituted.

Name: _____

DOB: _____

Address: _____

ID number: _____

Examiner: _____

Date: _____

STEP 4: EXAMINATION GLASGOW COMA SCALE (GCS)³

Time of assessment			
Date of assessment			
Best eye response (E)			
No eye opening	1	1	1
Eye opening in response to pain	2	2	2
Eye opening to speech	3	3	3
Eyes opening spontaneously	4	4	4
Best verbal response (V)			
No verbal response	1	1	1
Incomprehensible sounds	2	2	2
Inappropriate words	3	3	3
Confused	4	4	4
Oriented	5	5	5
Best motor response (M)			
No motor response	1	1	1
Extension to pain	2	2	2
Abnormal flexion to pain	3	3	3
Flexion / Withdrawal to pain	4	4	4
Localizes to pain	5	5	5
Obeys commands	6	6	6
Glasgow Coma score (E + V + M)			

CERVICAL SPINE ASSESSMENT

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

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:

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

Current medications? If yes, please list:

Name: _____

DOB: _____

Address: _____

ID number: _____

Examiner: _____

Date: _____

2

STEP 2: SYMPTOM EVALUATION

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

Please Check: Baseline Post-Injury

Please hand the form to the athlete

	none	mild	moderate	severe			
Headache	0	1	2	3	4	5	6
Pressure in head	0	1	2	3	4	5	6
Neck Pain	0	1	2	3	4	5	6
Nausea or vomiting	0	1	2	3	4	5	6
Dizziness	0	1	2	3	4	5	6
Blurred vision	0	1	2	3	4	5	6
Balance problems	0	1	2	3	4	5	6
Sensitivity to light	0	1	2	3	4	5	6
Sensitivity to noise	0	1	2	3	4	5	6
Feeling slowed down	0	1	2	3	4	5	6
Feeling like "in a fog"	0	1	2	3	4	5	6
Don't feel right	0	1	2	3	4	5	6
Difficulty concentrating	0	1	2	3	4	5	6
Difficulty remembering	0	1	2	3	4	5	6
Fatigue or low energy	0	1	2	3	4	5	6
Confusion	0	1	2	3	4	5	6
Drowsiness	0	1	2	3	4	5	6
More emotional	0	1	2	3	4	5	6
Irritability	0	1	2	3	4	5	6
Sadness	0	1	2	3	4	5	6
Nervous or Anxious	0	1	2	3	4	5	6
Trouble falling asleep (if applicable)	0	1	2	3	4	5	6
Total number of symptoms:							of 22
Symptom severity score:							of 132
Do your symptoms get worse with physical activity?							Y N
Do your symptoms get worse with mental activity?							Y N
If 100% is feeling perfectly normal, what percent of normal do you feel?							

If not 100%, why?

Please hand form back to examiner

3

STEP 3: COGNITIVE SCREENING

Standardised Assessment of Concussion (SAC)⁴

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 hour)	0	1
Orientation score	of 5	

IMMEDIATE MEMORY

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

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

I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order. For Trials 2 & 3: I am going to repeat the same list again. Repeat back as many words as you can remember in any order, even if you said the word before.

List	Alternate 5 word lists					Score (of 5)		
						Trial 1	Trial 2	Trial 3
A	Finger	Penny	Blanket	Lemon	Insect			
B	Candle	Paper	Sugar	Sandwich	Wagon			
C	Baby	Monkey	Perfume	Sunset	Iron			
D	Elbow	Apple	Carpet	Saddle	Bubble			
E	Jacket	Arrow	Pepper	Cotton	Movie			
F	Dollar	Honey	Mirror	Saddle	Anchor			
Immediate Memory Score						of 15		
Time that last trial was completed								

List	Alternate 10 word lists					Score (of 10)		
						Trial 1	Trial 2	Trial 3
G	Finger	Penny	Blanket	Lemon	Insect			
	Candle	Paper	Sugar	Sandwich	Wagon			
H	Baby	Monkey	Perfume	Sunset	Iron			
	Elbow	Apple	Carpet	Saddle	Bubble			
I	Jacket	Arrow	Pepper	Cotton	Movie			
	Dollar	Honey	Mirror	Saddle	Anchor			
Immediate Memory Score						of 30		
Time that last trial was completed								

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

CONCENTRATION

DIGITS BACKWARDS

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

I am going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7.

Concentration Number Lists (circle one)					
List A	List B	List C			
4-9-3	5-2-6	1-4-2	Y	N	0
6-2-9	4-1-5	6-5-8	Y	N	1
3-8-1-4	1-7-9-5	6-8-3-1	Y	N	0
3-2-7-9	4-9-6-8	3-4-8-1	Y	N	1
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	N	0
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	N	1
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	N	0
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	N	1
List D	List E	List F			
7-8-2	3-8-2	2-7-1	Y	N	0
9-2-6	5-1-8	4-7-9	Y	N	1
4-1-8-3	2-7-9-3	1-6-8-3	Y	N	0
9-7-2-3	2-1-6-9	3-9-2-4	Y	N	1
1-7-9-2-6	4-1-8-6-9	2-4-7-5-8	Y	N	0
4-1-7-5-2	9-4-1-7-5	8-3-9-6-4	Y	N	1
2-6-4-8-1-7	6-9-7-3-8-2	5-8-6-2-4-9	Y	N	0
8-4-1-9-3-5	4-2-7-9-3-8	3-1-7-8-2-6	Y	N	1
Digits Score: of 4					

MONTHS IN REVERSE ORDER

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

Dec - Nov - Oct - Sept - Aug - Jul - Jun - May - Apr - Mar - Feb - Jan	0	1
Months Score	of 1	
Concentration Total Score (Digits + Months)	of 5	

4

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 (e.g. symptom checklist) and follow instructions without difficulty?	Y	N
Does the patient have a full range of pain-free PASSIVE cervical spine movement?	Y	N
Without moving their head or neck, can the patient look side-to-side and up-and-down without double vision?	Y	N
Can the patient perform the finger nose coordination test normally?	Y	N
Can the patient perform tandem gait normally?	Y	N

BALANCE EXAMINATION

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.) _____

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

Name: _____

DOB: _____

Address: _____

ID number: _____

Examiner: _____

Date: _____

5

STEP 5: DELAYED RECALL:

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

Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order.

Time Started

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

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

6

STEP 6: DECISION

Domain	Date & time of assessment:		
Symptom number (of 22)			
Symptom severity score (of 132)			
Orientation (of 5)			
Immediate memory	of 15 of 30	of 15 of 30	of 15 of 30
Concentration (of 5)			
Neuro exam	Normal Abnormal	Normal Abnormal	Normal Abnormal
Balance errors (of 30)			
Delayed Recall	of 5 of 10	of 5 of 10	of 5 of 10

Date and time of injury: _____

If the athlete is known to you prior to their injury, are they different from their usual self?

Yes No Unsure Not Applicable
(If different, describe why in the clinical notes section)

Concussion Diagnosed?

Yes No Unsure Not Applicable

If re-testing, has the athlete improved?

Yes No Unsure Not Applicable

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

Signature: _____

Name: _____

Title: _____

Registration number (if applicable): _____

Date: _____

SCORING ON THE SCAT5 SHOULD NOT BE USED AS A STAND-ALONE METHOD TO DIAGNOSE CONCUSSION, MEASURE RECOVERY OR MAKE DECISIONS ABOUT AN ATHLETE'S READINESS TO RETURN TO COMPETITION AFTER CONCUSSION.

INSTRUCTIONS

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

Symptom Scale

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

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

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

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

Immediate Memory

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

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

Complete all 3 trials regardless of score on previous trials.

"I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order." The words must be read at a rate of one word per second.

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

Trials 2 & 3:

"I am going to repeat the same list again. Repeat back as many words as you can remember in any order, even if you said the word before."

Score 1 pt. for each correct response. Total score equals sum across all 3 trials. Do NOT inform the athlete that delayed recall will be tested.

Concentration

Digits backward

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

Say: *"I am going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7."*

Begin with first 3 digit string.

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

Months in reverse order

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

1 pt. for entire sequence correct

Delayed Recall

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

"Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order."

Score 1 pt. for each correct response

Modified Balance Error Scoring System (mBESS)⁵ testing

This balance testing is based on a modified version of the Balance Error Scoring System (BESS)⁵. A timing device is required for this testing.

Each of 20-second trial/stance is scored by counting the number of errors. The examiner will begin counting errors only after the athlete has assumed the proper start position. The modified BESS is calculated by adding one error point for each error during the three 20-second tests. The maximum number of errors for any single condition is 10. If the athlete commits multiple errors simultaneously, only

one error is recorded but the athlete should quickly return to the testing position, and counting should resume once the athlete is set. Athletes that are unable to maintain the testing procedure for a minimum of five seconds at the start are assigned the highest possible score, ten, for that testing condition.

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

Balance testing – types of errors

- | | | |
|---------------------------------|---|---|
| 1. Hands lifted off iliac crest | 3. Step, stumble, or fall | 5. Lifting forefoot or heel |
| 2. Opening eyes | 4. Moving hip into > 30 degrees abduction | 6. Remaining out of test position > 5 sec |

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

(a) Double leg stance:

"The first stance is standing with your feet together with your hands on your hips and with your eyes closed. You should try to maintain stability in that position for 20 seconds. I will be counting the number of times you move out of this position. I will start timing when you are set and have closed your eyes."

(b) Single leg stance:

"If you were to kick a ball, which foot would you use? [This will be the dominant foot] Now stand on your non-dominant foot. The dominant leg should be held in approximately 30 degrees of hip flexion and 45 degrees of knee flexion. Again, you should try to maintain stability for 20 seconds with your hands on your hips and your eyes closed. I will be counting the number of times you move out of this position. If you stumble out of this position, open your eyes and return to the start position and continue balancing. I will start timing when you are set and have closed your eyes."

(c) Tandem stance:

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

Tandem Gait

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

Finger to Nose

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

References

1. McCrory et al. Consensus Statement On Concussion In Sport – The 5th International Conference On Concussion In Sport Held In Berlin, October 2016. British Journal of Sports Medicine 2017 (available at www.bjsm.bmj.com)
2. Maddocks, DL; Dicker, GD; Saling, MM. The assessment of orientation following concussion in athletes. Clinical Journal of Sport Medicine 1995; 5: 32-33
3. Jennett, B., Bond, M. Assessment of outcome after severe brain damage: a practical scale. Lancet 1975; i: 480-484
4. McCreary M. Standardized mental status testing of acute concussion. Clinical Journal of Sport Medicine. 2001; 11: 176-181
5. Guskiewicz KM. Assessment of postural stability following sport-related concussion. Current Sports Medicine Reports. 2003; 2: 24-30

CONCUSSION INFORMATION

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

Signs to watch for

Problems could arise over the first 24-48 hours. The athlete should not be left alone and must go to a hospital at once if they experience:

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

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

Rest & Rehabilitation

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

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

Graduated Return to Sport Strategy

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

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

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

Graduated Return to School Strategy

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

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

Mental Activity	Activity at each step	Goal of each step
1. Daily activities that do not give the athlete symptoms	Typical activities that the athlete does during the day as long as they do not increase symptoms (e.g. reading, texting, screen time). Start with 5-15 minutes at a time and gradually build up.	Gradual return to typical activities.
2. School activities	Homework, reading or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work.
3. Return to school part-time	Gradual introduction of school-work. May need to start with a partial school day or with increased breaks during the day.	Increase academic activities.
4. Return to school full-time	Gradually progress school activities until a full day can be tolerated.	Return to full academic activities and catch up on missed work.

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

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

The athlete should not go back to sports until they are back to school/learning, without symptoms getting significantly worse and no longer needing any changes to their schedule.



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)

Appendix H: Graduated Return to Play Protocol

Stage of Rehabilitation	Daily Activities	Recommended Exercises
Stage 1 -asymptomatic 24hrs	NONE	NONE
Stage 2 - HR= 30-40% max - Exercise in a quiet area	<ul style="list-style-type: none"> - Light aerobic activity (15min) - Sub-max isometric strengthening & gentle isotonic - ROM/stretching - Low level balance activities 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Light-mod. Aerobic activity (20-30min) - Light wt. exercises - Active stretching - Mod. Balance w. head movement 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Moderate-aggressive aerobic exer. - All strength exer @80% max - Active stretching - Agilities, plyometrics - Proprioceptive/dynamic balance - Non-contact sport specific training 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Limited-contact training - Aggressive strength exer. - Impact activities/plyometrics - Sport specific activities w/ light contact 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> -Resume full physical training activities w/ contact as appropriate - Continue aggressive strength & conditioning - Sport specific activities 	<ul style="list-style-type: none"> - 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

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 checklists²⁷⁻³⁰

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.

	None		Moderate		Severe		
Score According to Severity	0	1	2	3	4	5	6

Blurred Vision							
Dizziness							
Drowsiness							
Sleeping More than Usual							
Easily Distracted							
Fatigue							
Feeling "In a Fog"							
Feeling "Slowed Down"							
Headache							
Unusually Emotional							
Irritability							
Loss of Consciousness							
Loss of Orientation							
Memory Problems							
Nauseous							
Nervousness							
Personality Changes							
Poor Balance/Coordination							
Ringling in the Ears							
Sadness							
Seeing Stars							
Sensitivity to Light							
Sensitivity to Noise							
Sleep Disturbances							
Vacant Stares/Glassy Eyes							
Vomiting							
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: _____