

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

There is no uniform definition of concussion. The Consensus Statement on Concussion in Sport, which resulted from the 6th international conference on concussion in sport, defines sport-related concussion as follows:

Sport-related concussion is a traumatic brain injury caused by a direct blow to the head, neck or body resulting in an impulsive force being transmitted to the brain that occurs in sports and exercise-related activities. This initiates a neurotransmitter and metabolic cascade, with possible axonal injury, blood flow change and inflammation affecting the brain. Symptoms and signs may present immediately, or evolve over minutes or hours, and commonly resolve within days, but may be prolonged.

No abnormality is seen on standard structural neuroimaging studies (computed tomography or magnetic resonance imaging T1- and T2-weighted images), but in the research setting, abnormalities may be present on functional, blood flow or metabolic imaging studies. Sport-related concussion results in a range of clinical symptoms and signs that may or may not involve loss of consciousness. The clinical symptoms and signs of concussion cannot be explained solely by (but may occur concomitantly with) drug, alcohol, or medication use, other injuries (such as cervical injuries, peripheral vestibular dysfunction) or other comorbidities (such as 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:

All NCAA student-athletes will undergo a pre-participation baseline concussion assessment. This assessment assumed individualized medical care, which means: Each athlete and each injury are different. Depending on the severity of prior injuries, the number of concussions, other individual concerns and based on the developing state of science, the team physician/primary health care provider should review each athlete's history and consider discussing with the student-athlete concerns about concussion and repetitive head impact as warranted, including potential risks and benefits from playing sport. Such discussion allows the athlete to make an informed decision about their participation in sport.

- 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, especially those with complicated or multiple concussion history.

- 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 6 (**Appendix E**) concussion evaluation tool.
 - More information on ImPACT testing can be found on the ImPACT website: <https://www.impacttest.com/about/>

Importantly, baseline testing may inform post-injury evaluation; however, student-athletes who have suffered a concussion may perform at the same level or even better than their baseline testing, as motivation and other factors may differ in post-concussion testing. Ultimately, baseline testing serves as one of many potential factors in making a clinical decision.

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. They 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 must be 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. 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.

NOTE: To be present means to be on site at the campus or arena of the competition. Medical personnel may be from either team or may be independently contracted for the event.

- Additionally, a member of the sports medicine staff must 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.

NOTE: To be available means that, at a minimum, medical personnel can be contacted at any time during the practice via telephone, messaging, email, beeper or other immediate communication means and that the case can be discussed through such communication, and immediate arrangements can be made for the athlete to be evaluated.

Any NCAA student-athlete that exhibits signs, symptoms or behaviors consistent with concussion must be removed from practice or competition for evaluation. Examples of signs that warrant immediate removal from the field include: actual or suspected loss of consciousness, seizure, tonic posturing, ataxia, poor balance, confusion, behavioral changes, amnesia).

- Concussion Evaluation
 - Must be evaluated by an athletic trainer or team physician (or physician designee) with concussion experience.
 - Allow ample time (e.g., 10-15 minutes) when conducting a multi-modal screen (e.g., SCAT6) to evaluate a potential concussion.
 - 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 after evaluation. Even in such cases, consider next day follow-up assessment because initial symptoms may not appear for several hours.

6. Initial Suspected Concussion Evaluation

The initial concussion evaluation must include an immediate assessment/neurological screen for “red flags” or observable signs. The assessment may include a multi-modal evaluation as clinically indicated such as:

- Clinical assessment to rule out cervical spine trauma, skull fracture, intracranial bleed or other catastrophic injury.
- Symptom assessment. (Graded Symptom Scale Checklist)
- Physical and neurological exam. (SCAT6) (**Appendix G**)
- Cognitive assessment. (ImPACT)
- Balance exam. (SCAT6)

A student-athlete must be immediately removed from play and assessed for possible transport to a local hospital/trauma center when any of the following signs/symptoms/behaviors are present resulting in the activation of the Emergency Action Plan:

- Neck pain or tenderness.
- Seizure or convulsion.
- Double vision.
- Loss of consciousness.
- Weakness or tingling/burning in more than one arm or in the legs.
- Deteriorating conscious state.

- Vomiting.
- Severe or increasing headache.
- Increasingly restless, agitated or combative.
- Glasgow Coma Scale Score <15.
- Visible deformity of the skull.

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 6 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 SCAT6 and the graded symptom score sheet to monitor progress/healing.
- 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.

Re-Evaluation:

Any NCAA student-athlete with atypical presentation or persisting symptoms > 4 weeks will be re-evaluated by a physician in order to consider additional diagnoses, best management options, and consideration of referral. Additional diagnoses include but are not limited to: fatigue and/or sleep disorder; migraine or other headache disorders; mental health symptoms and disorders; ocular dysfunction; cervical and vestibular dysfunction; cognitive impairment and autonomic dysfunction including orthostatic intolerance and postural orthostatic tachycardia syndrome; pain.

8. Return-to-Learn Management

The vast majority of young adults have a full return-to-learn with no additional academic support by 10 days post-injury. Complete rest and isolation should be avoided, even during the initial 24-48 hours post-injury. Relative rest is important in the first 24 hours. For those student-athletes with persisting symptoms a more formal plan may be in order.

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. The plan may address environment, physical, curriculum and/or testing adjustments.

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-Sport Management

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 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. Reducing Head Impact Exposure

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.
 - 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.
 - The following sports will be carefully observed by the team athletic trainer for signs of problems with a helmet:
 - a. Football
 - b. Men's & Women's Hockey
 - c. Men's Lacrosse
 - d. Baseball
 - e. Softball
 - Items to check with an athlete's helmet to assure safety include, but are not limited to:
 - a. Chin straps must be buckled
 - b. No cracks or damaging chips in the helmet
 - c. No damage to the facemask
 - d. No missing screws/replace missing screws
 - e. All clips are secured and/or replaced if needed
 - f. The helmet is stable on the athlete's head with no movement

- g. The helmet appears to fit allowing for proper vision
 - h. Presence of the appropriate equipment standard seal and warning stickers
 - i. 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”

Appendix A

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 of 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 6) before beginning my Athletic season.**
 - **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 STUDENT-ATHLETES NEED TO KNOW

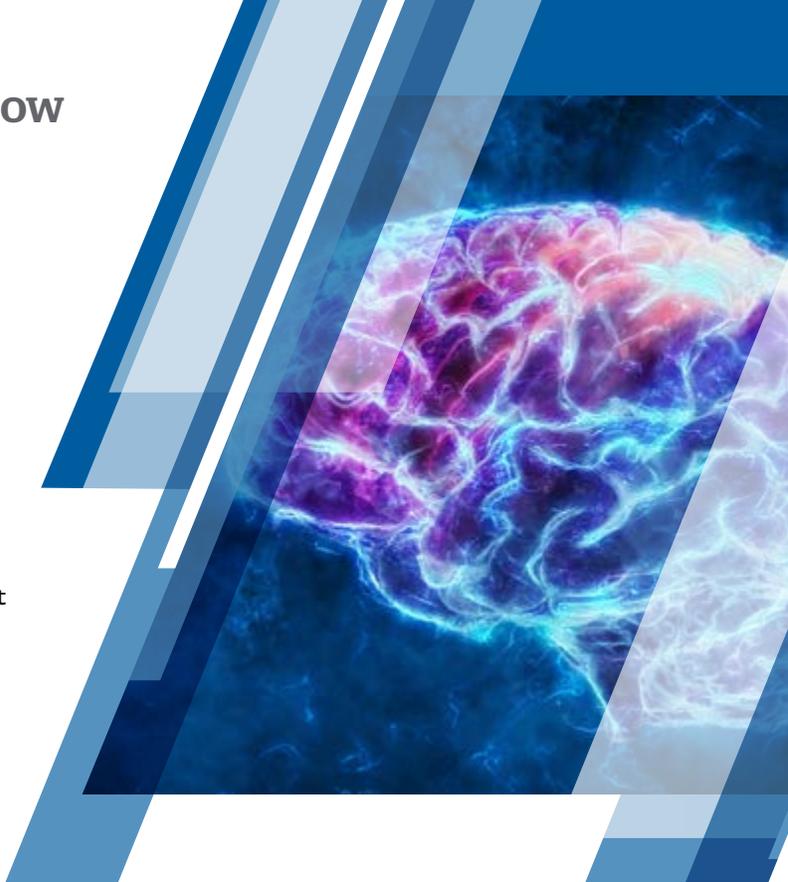
Concussion Safety

What Is a Concussion?

The Consensus Statement on Concussion in Sport, which resulted from the sixth international conference, defines sport-related concussion as follows:

Sport-related concussion is a traumatic brain injury caused by a direct blow to the head, neck or body resulting in an impulsive force being transmitted to the brain that occurs in sports and exercise-related activities. This initiates a neurotransmitter and metabolic cascade, with possible axonal injury, blood flow change and inflammation affecting the brain. Symptoms and signs may present immediately, or evolve over minutes or hours, and commonly resolve within days, but may be prolonged.

Additional information on concussion diagnosis, management and prevention in collegiate athletes, including a complete definition of concussion, can be found [here](#).



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.
- When managed properly, most student-athletes recover fully from concussion. Exercise, under medical supervision, is a core component of concussion management.
- There may be negative consequences when concussion is left untreated.
- 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 signs.

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, unsteady on feet or wobbly.
- 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 them 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. Symptoms may appear several hours after the initial impact or even the next day. Symptoms may also evolve over several days. 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 is the Recovery Time for a Concussion?

- Each athlete is different, but emerging information indicates that most athletes fully recover from concussion.
- Some athletes experience persisting post-concussive symptoms, which are managed with exercise and targeted treatment.
- If your symptoms persist, you may also have another treatable condition unrelated to your concussion. If you are experiencing any ongoing symptoms, please seek medical care with the team physician.

What Do I Need to Know About Repeated Head Impacts?

- Research into the new concept of repeated head impacts is evolving rapidly.
- Most head impacts in sport occur at low levels well below the force needed to cause a sports-related concussion.
- The medical and scientific community continues to conduct research to determine if long-term exposure to head impacts may be deleterious to brain health.
- While many questions remain unanswered, the NCAA Concussion Checklist recommends that efforts should be made to reduce head impact exposure in both practice and game settings.

Chronic Traumatic Encephalopathy (“CTE”)

- In recent years, there has been ongoing research into CTE, and more research is needed to answer important questions.
- According to the Centers for Disease Control website, research-to-date suggests that CTE is associated with long-term exposure to repeated head impacts at levels that would cause injury to the brain.
- According to the CDC, there is no strong scientific evidence that shows that getting one or more concussions (or other mild traumatic brain injuries) or occasional hits to the head leads to CTE.

More research is needed to better understand:

- The causes of CTE, including the role of repeated head impacts.
- Other potential risk factors for CTE, including the role of a person's sex, genetics, medical history, and environmental and lifestyle factors.
- How the CTE pathology develops, and what symptoms CTE pathology may cause.
- Why some people develop CTE and others do not.

You can find more information on the emerging CTE research at various sources including the [CDC](#), [NINDS](#) and the [Consensus Statement on Concussion in Sport](#).

If you are concerned or have questions, please talk to your medical doctor.

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



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



Return-to-Sport

Final return-to-sport only happens after you have returned to your pre-concussion baseline and you've gone through a step-by-step progression of increasing activity.

Concussion Safety

What Is a Concussion?

Concussion is a mild traumatic brain injury that results from either a direct blow to the head or an impulsive force to the body that causes significant head motion. Concussion symptoms can result immediately or develop over many hours.

Additional information on concussion diagnosis, management and prevention in collegiate athletes, including a complete definition of concussion, can be found [here](#).

How Can I Tell If an Athlete Has a Concussion?

You may notice the athlete has a change in behavior or balance following a hit or impact, or other manifestations such as:

- 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, unsteady on feet or wobbly.
- 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.

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 Is the Recovery Time for a Concussion?

- Each athlete is different, but emerging information indicates that most athletes fully recover from concussion.
- Some athletes experience persisting post-concussive symptoms, which are managed with exercise and targeted treatment.
- If an athlete's symptoms persist, they may also have another treatable condition unrelated to their concussion. If the athlete is experiencing any ongoing symptoms, they should seek medical care with the team physician.

What Do I Need to Know About Repeated Head Impacts?

- Research into the new concept of repeated head impacts is evolving rapidly.
- Most head impacts in sport occur at low levels well below the force needed to cause a sports-related concussion.
- The medical and scientific community continues to conduct research to determine if long-term exposure to head impacts may be deleterious to brain health.
- While many questions remain unanswered, the NCAA Concussion Checklist recommends that efforts should be made to reduce head impact exposure in both practice and game settings.

No two concussions are the same. Symptoms may appear several hours after the initial impact or even the next day. Symptoms may also evolve over several days. All possible concussions must be evaluated by an athletic trainer or team physician (or physician designee) with concussion experience.

Chronic Traumatic Encephalopathy (“CTE”)

- In recent years, there has been ongoing research into CTE, and more research is needed to answer important questions.
- According to the Centers for Disease Control website, research-to-date suggests that CTE is associated with long-term exposure to repeated head impacts at levels that would cause brain injury.
- According to the CDC, there is no strong scientific evidence that shows that getting one or more concussions (or other mild traumatic brain injuries) or occasional hits to the head leads to CTE.

More research is needed to better understand:

- The causes of CTE, including the role of repeated head impacts.
- Other potential risk factors for CTE, including the role of a person’s sex, genetics, medical history, and environmental and lifestyle factors.
- How the CTE pathology develops, and what symptoms CTE pathology may cause.
- Why some people develop CTE and others do not.

You can find more information on the emerging CTE research at various sources including the [CDC](#), [NINDS](#) and the [Consensus Statement on Concussion in Sport](#).

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-sport 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.



What Can I Do to Keep 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-sport 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 further, potentially serious injury.	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 health decisions, including clearance for unrestricted return to sport are determined by 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.

Positive Concussion History Follow-Up Questionnaire

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 6

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

NAME: _____

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)

Primary Symptoms: _____

Has the athlete ever been:

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

Current medications? If yes, please list: _____

	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

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Has CCAPS been completed? YES NO

SIGNATURE OF CLINICIAN _____ DATE: _____

SRC 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.

Sport Concussion Assessment Tool™ – 6 (SCAT6)

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What is the SCAT6?

The SCAT6 is a standardised tool for evaluating concussions designed for use by Health Care Professionals (HCPs). The SCAT6 cannot be performed correctly in less than 10-15 minutes. Except for the symptoms scale, the SCAT6 is intended to be used in the acute phase, ideally within 72 hours (3 days), and up to 7 days, following injury. If greater than 7 days post-injury, consider using the SCAT6/Child SCAT6.

The SCAT6 is used for evaluating athletes aged 13 years and older. For children aged 12 years or younger, please use the Child SCAT6.

If you are not an HCP, please use the Concussion Recognition Tool 6 (CRT6).

Preseason baseline testing with the SCAT6 can be helpful for interpreting post-injury test scores but is not required for that purpose. Detailed instructions for use of the SCAT6 are provided as a supplement. Please read through these instructions carefully before testing the athlete. Brief verbal instructions for each test are given in *blue italics*. The only equipment required for the examiner is athletic tape and a watch or timer.

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Recognise and Remove

A head impact by either a direct blow or indirect transmission of force to the head can be associated with serious and potentially fatal consequences. If there are significant concerns, which may include any of the Red Flags listed in Box 1, the athlete requires urgent medical attention, and if a qualified medical practitioner is not available for immediate assessment, then activation of emergency procedures and urgent transport to the nearest hospital or medical facility should be arranged.

Completion Guide

Orange: Optional part of assessment

Key Points

- Any athlete with suspected concussion should be REMOVED FROM PLAY, medically assessed, and monitored for injury-related signs and symptoms, including deterioration of their clinical condition.
- No athlete diagnosed with concussion should return 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 (or transported if needed) to a medical facility for assessment.
- Athletes with suspected or diagnosed concussion should not take medications such as aspirin or other anti-inflammatories, sedatives or opiates, drink alcohol or use recreational drugs and should not drive a motor vehicle until cleared to do so by a medical professional.
- Concussion signs and symptoms may evolve over time; it is important to monitor the athlete for ongoing, worsening, or the development of additional concussion-related symptoms.
- The diagnosis of concussion is a clinical determination made by an HCP.
- The SCAT6 should NOT be used by itself to make, or exclude, the diagnosis of concussion. It is important to note that an athlete may have a concussion even if their SCAT6 assessment is within normal limits.

Remember

- The basic principles of first aid should be followed: assess danger at the scene, athlete responsiveness, airway, breathing, and circulation.
- Do not attempt to move an unconscious/unresponsive athlete (other than what is required for airway management) unless trained to do so.
- Assessment for a spinal and/or spinal cord injury is a critical part of the initial on-field evaluation. Do not attempt to assess the spine unless trained to do so.
- Do not remove a helmet or any other equipment unless trained to do so safely.

For use by Health Care Professionals Only SCAT6™

Developed by: The Concussion in Sport Group (CISG)

Supported by:

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SCAT6™

Sport Concussion Assessment Tool For Adolescents (13 years +) & Adults

Athlete Name: **ID Number:**

Date of Birth: **Date of Examination:** **Date of Injury:**

Time of Injury: **Sex:** Male Female Prefer Not To Say Other

Dominant Hand: Left Right Ambidextrous **Sport/Team/School:**

Current Year in School (if applicable): **Years of Education Completed (Total):**

First Language: **Preferred Language:**

Examiner:

Concussion History

How many diagnosed concussions has the athlete had in the past?:

When was the most recent concussion?:

Primary Symptoms:

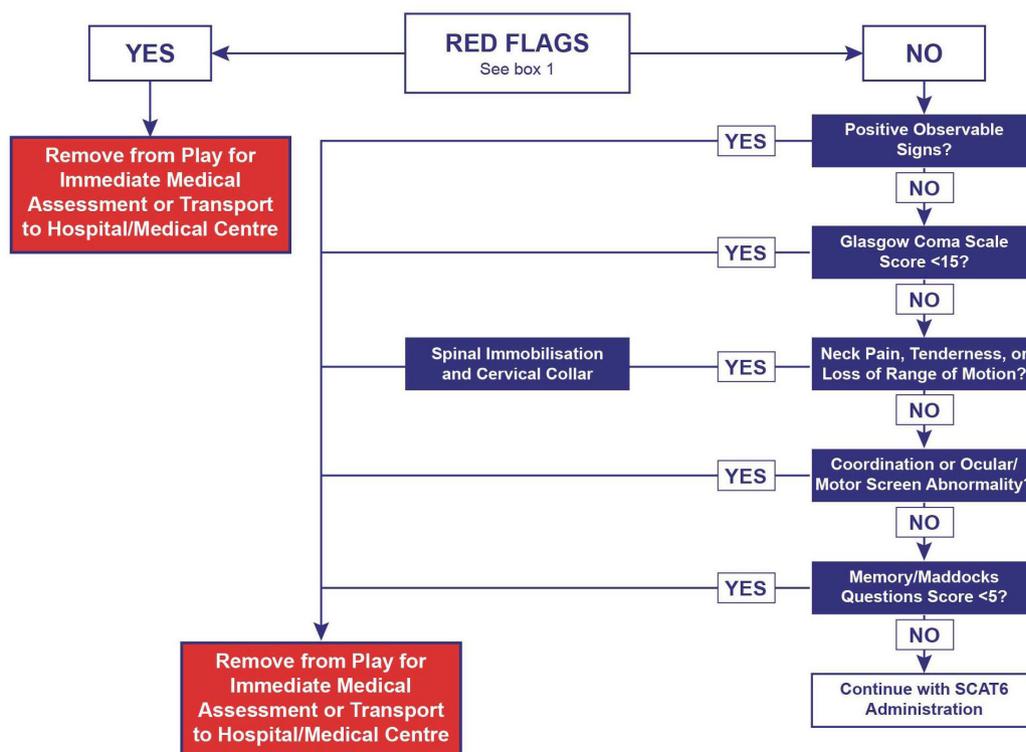
How long was the recovery (time to being cleared to play) from the most recent concussion?: (Days)

Immediate Assessment/Neuro Screen (Not Required at Baseline)

The following elements should be used in the evaluation of all athletes who are suspected of having a concussion prior to proceeding to the cognitive assessment, and ideally should be completed "on-field" after the first aid/emergency care priorities are completed.

If any of the observable signs of concussion are noted after a direct or indirect blow to the head, the athlete should be immediately and safely removed from participation and evaluated by an HCP.

The Glasgow Coma Scale is important as a standard measure for all patients and can be repeated over time to monitor deterioration of consciousness. The Maddocks questions and cervical spine exam are also critical steps of the immediate assessment.





Step 1: Observable Signs

Witnessed Observed on Video

Lying motionless on playing surface	Y	N
Falling unprotected to the surface	Y	N
Balance/gait difficulties, motor incoordination, ataxia: stumbling, slow/laboured movements	Y	N
Disorientation or confusion, staring or limited responsiveness, or an inability to respond appropriately to questions	Y	N
Blank or vacant look	Y	N
Facial injury after head trauma	Y	N
Impact seizure	Y	N
High-risk mechanism of injury (sport-dependent)	Y	N

Step 2: Glasgow Coma Scale

Typically, GCS is assessed once. Additional scoring columns are provided for monitoring over time, if needed.

Time of Assessment:

Date of Assessment:

Best Eye Response (E)			
No eye opening	1	1	1
Eye opening 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 (V)			
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
Localized to pain	5	5	5
Obeys commands	6	6	6

Glasgow Coma Score (E + V + M)			
---------------------------------------	--	--	--

Box 1: Red Flags

- Neck pain or tenderness
- Seizure or convulsion
- Double vision
- Loss of consciousness
- Weakness or tingling/burning in more than 1 arm or in the legs
- Deteriorating conscious state
- Vomiting
- Severe or increasing headache
- Increasingly restless, agitated or combative
- GCS <15
- Visible deformity of the skull

Step 3: Cervical Spine Assessment

In a patient who is not lucid or fully conscious, a cervical spine injury should be assumed and spinal precautions taken.

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

Step 4: Coordination & Ocular/Motor Screen

Coordination: Is finger-to-nose normal for both hands with eyes open and closed?	Y	N
Ocular/Motor: Without moving their head or neck, can the patient look side-to-side and up-and-down without double vision?	Y	N
Are observed extraocular eye movements normal? If not, describe:	Y	N

Step 5: Memory Assessment Maddocks Questions¹

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

Modified Maddocks questions (Modified appropriately for each sport; 1 point for each correct answer)

What venue are we at today?	0	1
Which half is it now?	0	1
Who scored last in this match?	0	1
What team did you play last week/game?	0	1
Did your team win the last game?	0	1
Maddocks Score	/5	

Note: Appropriate sport-specific questions may be substituted



Off-Field Assessment

Please note that the cognitive assessment should be done in a distraction-free environment with the athlete in a resting state **after** completion of the Immediate Assessment/Neuro Screen.

Step 1: Athlete Background

Has the athlete ever been:

Hospitalised for head injury? (If yes, describe below)	Y	N	Diagnosed with attention deficit hyperactivity disorder (ADHD)?	Y	N
Diagnosed/treated for headache disorder or migraine?	Y	N	Diagnosed with depression, anxiety, or other psychological disorder?	Y	N
Diagnosed with a learning disability/dyslexia?	Y	N			

Notes:

Current medications? If yes, please list:

Step 2: Symptom Evaluation

Baseline: Suspected/Post-injury: Time elapsed since suspected injury: mins/hours/days

The athlete will complete the symptom scale (below) after you provide instructions. Please note that the instructions are different for baseline versus suspected/post-injury evaluations.

Baseline: Say *“Please rate your symptoms below based on how you typically feel with “1” representing a very mild symptom and “6” representing a severe symptom.”*

Suspected/Post-injury: Say *“Please rate your symptoms below based on how you feel now with “1” representing a very mild symptom and “6” representing a severe symptom.”*

PLEASE HAND THE FORM TO THE ATHLETE

Symptom	Rating
Headaches	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

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 THE FORM BACK TO THE EXAMINER

Once the athlete has completed answering all symptom items, it may be useful for the clinician to revisit items that were endorsed positively to gather more detail about each symptom.

Total number of symptoms: of 22 Symptom severity score: of 132



Step 3: Cognitive Screening (Based on Standardized Assessment of Concussion; SAC)²

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

All 3 trials must be administered irrespective of the number correct on Trial 1. Administer at the rate of one word per second.

Trial 1: Say "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."

Trials 2 and 3: Say "I am going to repeat the same list. Repeat back as many words as you can remember in any order, even if you said the word before in a previous trial."

Word list used: A B C

				Alternate Lists	
List A	Trial 1	Trial 2	Trial 3	List B	List C
Jacket	0 1	0 1	0 1	Finger	Baby
Arrow	0 1	0 1	0 1	Penny	Monkey
Pepper	0 1	0 1	0 1	Blanket	Perfume
Cotton	0 1	0 1	0 1	Lemon	Sunset
Movie	0 1	0 1	0 1	Insect	Iron
Dollar	0 1	0 1	0 1	Candle	Elbow
Honey	0 1	0 1	0 1	Paper	Apple
Mirror	0 1	0 1	0 1	Sugar	Carpet
Saddle	0 1	0 1	0 1	Sandwich	Saddle
Anchor	0 1	0 1	0 1	Wagon	Bubble
Trial Total					

Immediate Memory Score of 30 **Time Last Trial Completed:**



Step 3: Cognitive Screening (Continued)

Concentration

Digits Backward:

Administer at the rate of one digit per second reading DOWN the selected column. If a string is completed correctly, move on to the string with next higher number of digits; if the string is completed incorrectly, use the alternate string with the same number of digits; if this is failed again, end the test.

Say *“I’m 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. So, if I said 9-6-8 you would say? (8-6-9)”*

Digit list used: A B C

List A	List B	List C				
4-9-3	5-2-6	1-4-2	Y	N	0	1
6-2-9	4-1-5	6-5-8	Y	N		
3-8-1-4	1-7-9-5	6-8-3-1	Y	N	0	1
3-2-7-9	4-9-6-8	3-4-8-1	Y	N		
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	N	0	1
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	N		
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	N	0	1
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	N		
				Digits Score		of 4

Months in Reverse Order:

Say *“Now tell me the months of the year in reverse order as QUICKLY and as accurately as possible. Start with the last month and go backward. So, you’ll say December, November... go ahead”*

Start stopwatch and CIRCLE each correct response:

December November October September August July June May April March February January

Time Taken to Complete (secs): Number of Errors:

1 point if no errors and completion under 30 seconds

Months Score: of 1

Concentration Score (Digits + Months) of 5

Step 4: Coordination and Balance Examination

Modified Balance Error Scoring System (mBESS)³ testing

(see detailed administration instructions)

Foot Tested: Left Right (i.e. test the non-dominant foot)

Testing Surface (hard floor, field, etc.):

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

OPTIONAL (depending on clinical presentation and setting resources): 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) with the same instructions and scoring.



Step 4: Coordination and Balance Examination (Continued)

Modified BESS

(20 seconds each)

Double Leg Stance: of 10
 Tandem Stance: of 10
 Single Leg Stance: of 10
 Total Errors: of 30

On Foam (Optional)

Double Leg Stance: of 10
 Tandem Stance: of 10
 Single Leg Stance: of 10
 Total Errors: of 30

Note: If the mBESS yields normal findings then proceed to the **Tandem Gait/Dual Task Tandem Gait**.

If the mBESS reveals abnormal findings or clinically significant difficulties, **Tandem Gait** is not necessary at this time.

Both the **Tandem Gait** and optional **Dual Task** component may be administered later in the office setting as needed (see SCOAT6).

Timed Tandem Gait

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed. Please complete all 3 trials.

Say *“Please walk heel-to-toe quickly to the end of the tape, turn around and come back as fast as you can without separating your feet or stepping off the line.”*

Single Task:

Time to Complete Tandem Gait Walking (seconds)				
Trial 1	Trial 2	Trial 3	Average 3 Trials	Fastest Trial
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Dual Task Gait (Optional. Timed Tandem Gait must be completed first)

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed.

Say *“Now, while you are walking heel-to-toe, I will ask you to count backwards out loud by 7s. For example, if we started at 100, you would say 100, 93, 86, 79. Let’s practise counting. Starting with 93, count backward by sevens until I say “stop”.”* Note that this practice only involves counting backwards.

Dual Task Practice: Circle correct responses; record number of subtraction counting errors.

Task											Errors	Time
Practice	93	86	72	65	58	51	44	37				

Say *“Good. Now I will ask you to walk heel-to-toe and count backwards out loud at the same time. Are you ready? The number to start with is 88. Go!”*

Dual Task Cognitive Performance: Circle correct responses; record number of subtraction counting errors.

Task													Errors	Time (circle fastest)	
Trial 1	88	81	74	67	60	53	46	39	32	25	18	11	4		
Trial 2	90	83	76	69	62	55	48	41	34	27	20	13	6		
Trial 3	98	91	84	77	70	63	56	49	42	35	28	21	14		

Alternate double number starting integers may be used and recorded below.

<input type="text"/>															
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Starting Integer: Errors: Time:



Step 4: Coordination and Balance Examination (Continued)

Were any single- or dual-task, timed tandem gait trials not completed due to walking errors or other reasons?

Yes No

If yes, please explain why:

Step 5: Delayed Recall

The Delayed Recall should be performed after **at least 5 minutes** have elapsed since the end of the Immediate Memory section:
Score 1 point for each correct response.

Say *“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:

Word list used: A B C

List A		Score		Alternate Lists	
				List B	List C
Jacket	0	1	Finger	Baby	
Arrow	0	1	Penny	Monkey	
Pepper	0	1	Blanket	Perfume	
Cotton	0	1	Lemon	Sunset	
Movie	0	1	Insect	Iron	
Dollar	0	1	Candle	Elbow	
Honey	0	1	Paper	Apple	
Mirror	0	1	Sugar	Carpet	
Saddle	0	1	Sandwich	Saddle	
Anchor	0	1	Wagon	Bubble	
Delayed Recall Score		of 10			

Total Cognitive Score

Orientation: of 5

Immediate Memory: of 30

Concentration: of 5

Delayed Recall: of 10

Total: of 50

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

Yes No Not applicable (If different, describe why in the [clinical notes](#) section)

For use by Health Care Professionals only

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Step 6: Decision

Domain	Date:	Date:	Date:
Neurological Exam (Acute Injury evaluation only)	Normal/Abnormal	Normal/Abnormal	Normal/Abnormal
Symptom number (of 22)			
Symptom Severity (of 132)			
Orientation (of 5)			
Immediate Memory (of 30)			
Concentration (of 5)			
Delayed Recall (of 10)			
Cognitive Total Score (of 50)			
mBESS Total Errors (of 30)			
Tandem Gait fastest time			
Dual Task fastest time			

Disposition

Concussion diagnosed?

Yes No Deferred

Health Care Professional Attestation

I am an HCP and I have personally administered or supervised the administration of this SCAT6.

Name:

Signature: Title/Speciality:

Registration/License number (if applicable): Date:

Additional Clinical Notes

Note: Scoring on the SCAT6 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 sport after concussion. Remember: An athlete can score within normal limits on the SCAT6 and still have a concussion.

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on the and is/was on the editorial boards (all unpaid) for Journal of Athletic Training (2015 to present), Concussion (2014 to present), Athletic Training & Sports Health Care (2008 to present), British Journal of Sports Medicine (2008 to 2019) JMB reports being a part-time employee of the NHL. JMB's institution has received funding from Genzyme, and EyeGuide supporting his work, and he has served as a paid consultant to Med-IQ and Sporting KC. JSB reports receiving methods author funding for this review and Alexander Graham Bell Canada Graduate Scholarships-Doctoral Program. GAD reports grant from Murdoch Children's Research Institute and travel support for professional conferences. He is a member of the Scientific Committee of the 6th International Consensus Conference on Concussion in Sport; an honorary member of the AFL Concussion Scientific Committee, and a board member of CISG. RJE is a paid consultant for the National Hockey League and co-chair of the National Hockey League /National Hockey League Players Association Concussion Subcommittee, Major League Soccer's Concussion Committee and the US Soccer Federation, provides testimony in matters related to mTBI and reports a grant from Boston Children's Hospital (sub-award from the National Football League) and travel support for the CIS conference and other professional conferences, an unpaid board member of CISG and leadership roles (unpaid) in professional organizations. GG Reports grant funding from CDC TEAM and OnTRACK grants, NIMH APNA grant, royalties from PAR, consulting fees from NFL Baltimore Ravens, Zogenix International, and Global Pharma Consultancy, and travel support for professional meetings. He is a member of USA Football Medical Advisory Panel. KMG reports compensation from National Collegiate Athletic Association for other services and grants from Boston Children's Hospital (sub-award from the National Football League). KH reports research grants from AMSSM and Football Research, Inc. She is the Research Development Director of the PAC-12 and a member of the NFL Head, Neck, and Spine committee and PAC-112 Brain Trauma Task Force. SH reports he is Co-founder and senior advisor, The Sports Institute at UW Medicine (unpaid), Centers for Disease Control and Prevention and National Center for Injury Prevention and Control Board Pediatric Mild Traumatic Brain Injury Guideline Workgroup (unpaid), NCAA Concussion Safety Advisory Group (unpaid), Concussion in Sport Group (travel support), Team Physician, Seattle Mariners, Former Team Physician, Seattle Seahawks, Occasional payment for expert testimony, Travel support for professional meetings. DH reports research support from the Eunice Kennedy Shriver National Institute of Child Health & Human Development, the National Institute of Neurological Disorders And Stroke, the National Institute of Arthritis and Musculoskeletal and Skin Diseases, 59th Medical Wing Department of the Air Force, MINDSOURCE Brain Injury Network, the Tai Foundation, and the Colorado Clinical and Translational Sciences Institute (UL1 TR002535-05) and he serves on the Scientific/Medical Advisory Board of Synaptek, LLC. CM reports no financial COI. She holds leadership positions with several organizations American College of Sports Medicine, American Medical Society for Sports Medicine, Pediatric Research in Sports Medicine, Council on Sports Medicine and Fitness, American Academy of Pediatrics, Untold Foundation, Pink Concussions, Headway Foundation, and the editorial boards of Journal of Adolescent Health, Frontiers in Neuroergonomics, Exercise, Sport, and Movement. MM reports grants from NIH, Veterans Affairs, Centers for Disease Control and Prevention (CDC), Abbott Laboratories, Department of Defense (DoD), and NCAA outside the submitted work. DN receives consulting fees from the CFL and travel support for professional conferences. He is a team physician for the NHL and CFL. He is CMO for the CFL and a member of NHL and CFL committees. JP reports travel support for the CIS conference and other professional meetings, consulting fees and grant funding from World Rugby, and an unpaid board member of CISG and EyeGuide. MP reports receiving a travel stipend for attending CIS

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Graduated Return-to-Sport Protocol

Stage of Rehabilitation*	Daily Activities	Recommended Exercises
Stage 1 -Symptom-limited activity	Daily activities that do not exacerbate symptoms	- Walking
Stage 2 -Aerobic Exercise Exercise in a quiet area	- Light aerobic activity (15min) - Light resistance training - 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 -Individual sport-specific exercise - 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 -Noncontact training drills - 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 -Full-contact practice - Aggressive training in all areas - Limited contact activities	- Participate in normal training activities - Aggressive strength exer. - Impact activities/plyometrics - Sport specific activities w/ light contact	- Unrestricted training
Stage 6 -Return to Sport - 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	- Unrestricted return-to-sport**

*A minimum of 24 hours at each stage is required; each stage tally takes a minimum of 24 hours

**Unrestricted return-to-sport should not occur prior to unrestricted return-to-learn for injuries occurring while the athlete is enrolled in classes.

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 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.

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

NAME:	DATE	DATE	DATE	DATE	DATE	DATE
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						
Ring 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: _____