



College of the Holy Cross Sports Medicine Policy on Management of Mild Traumatic Brain Injury (MTBI)

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

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

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

The following are treatment orders for the management of sport-related MTBI as seen by the Sports Medicine staff at the College of the Holy Cross:

1. All new student-athletes must sign the *College of the Holy Cross Student-Athlete Concussion Responsibility Statement (Appendix A)*, prior to their participation on any athletic team at the college, in which they accept the responsibility for reporting the signs and symptoms associated with a possible MTBI to the Sports Medicine staff.
 - a. The certified athletic trainer working with that student-athlete and their respective team must scan this form to Mediat to ensure that the form has been signed and received by the sports medicine department. Ideally, this form will be submitted with the incoming student-athlete paperwork during the summer months.
 - b. Student-athletes will have access to various educational materials on concussions, including the NCAA fact sheet on concussions for student-athletes. **(Appendix B)**.
2. The Certified Athletic Trainer (AT) and team physicians agree on protocol for managing sport-related MTBI prior to the beginning of the athletic season. Specifically, upon evaluation of a sport-related concussion, the Sports Medicine staff will focus attention on:
 - a. The athlete’s recovery via symptoms
 - b. Neurocognitive testing
 - c. Postural-stability testing
3. All coaches and associated health care professionals will be educated regarding the seriousness of a possible MTBI, the use of this policy, and the NCAA policy disqualifying an athlete from play in the same day as a suspected MTBI.
 - a. All coaches will receive copies of the Concussion Education handout produced by the NCAA prior to their start of season activities **(Appendix C)**.
4. Baseline testing will be implemented ideally prior to the start of a contact sport athletic season using the online ImPACT Concussion Assessment tool and Balance Error Scoring System (BESS) **(Appendix D)** concussion evaluation tools.
 - a. Any athlete with a reported history of a MTBI will also answer a detailed Pre-participation Physical Examination (PPE) concussion questionnaire for their medical records as seen in **(Appendix E)**.



- b. More conservative treatment, as coordinated with a team physician, should be provided to the concussed athlete with a medical history of MTBI or related injury.
 - c. More information on ImPACT testing can be found on the ImPACT website:
<https://www.impacttest.com/about/>
 5. 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 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 AT for signs of problems with a helmet:
 - o Football
 - o Men's & Women's Hockey
 - o Men's Lacrosse
 - o Baseball- batters and catchers
 - o Softball- batters and catcher
 - c. Items to check with an athlete's helmet to assure safety include:
 - o Chin straps must be buckled
 - o No cracks or damaging chips in the helmet
 - o No damage to the facemask
 - o No missing screws/replace missing screws
 - o All clips are secured and/or replaced if needed
 - o The helmet is stable on the athlete's head with no movement
 - o The helmet appears to fit allowing for proper vision
 - o Presence of the appropriate equipment standard seal and warning stickers
 - d. All student-athletes on the football team must read, sign, and accept the standards set for on the NOCSAE form (**Appendix F**). They must do this yearly.
 6. Clinical evaluation should include a primary survey, and thorough secondary survey with a history, observation, palpation, and special testing (stress tests, range-of-motion testing, strength testing, neurological testing, and functional testing).
 - a. The team AT and Sports Medicine staff must be familiar with the signs and symptoms of a concussion, screening/evaluation tools, and must be able to differentiate between a MTBI and a focal traumatic brain injury (TBI).
 - b. The team AT and Sports Medicine staff must be familiar with guidelines for return to play, guidelines for immediate referral to the Emergency Department, guidelines for physician referral, and guidelines for disqualification as outlined in (**Appendix G**).
 7. Concussion screening during a clinical sideline evaluation will include use of the Pocket Sport Concussion Assessment Tool 3 (SCAT3) (**Appendix H**)
 - a. If a sideline evaluation results in the diagnosis of a concussion, the student-athlete will be completely shut down from physical activity and excluded from play. They must then follow up with a team physician as soon as possible and will refrain from all athletic activities until cleared to return.
 8. Additional assessment of the cervical spine and cranial nerves will be performed to identify any cervical spine or intracerebral (focal TBI) injuries.
 9. The AT will monitor a patient's vital signs, symptoms, and level of consciousness every 5 minutes during a sideline evaluation until the athlete's condition improves.
 10. A combination of screening tools will be implemented during a post-injury evaluation of an athlete who has experienced a concussion:
 - a. Impact Concussion Assessment testing repeated at 24hrs. after injury (if not affected by travel), when the patient is symptom-free, and just prior to return-to-play



- b. BESS testing repeated at 24hrs after injury, when the patient is symptom-free, and just prior to return-to-play
 - c. Graded Symptom Scale (**Appendix I**) must be completed daily to track 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.
11. The AT and Sports Medicine staff will document all pertinent information surrounding the concussive injury, including but not limited to (1) mechanism of injury; (2) initial signs and symptoms; (3) state of consciousness; (4) findings on serial testing of symptoms and neurocognitive function and postural-stability tests; (5) instructions given to the athlete and caretaker(s); (6) recommendations provided by the physician and subsequent referrals; (7) athlete's gradual return to all cognitive activities and classes (8) athlete's graduated return to play protocol (**Appendix J**); (9) date and time of the athlete's full return to play; (10) relevant information on the patient's history of prior concussion and associated recovery patterns.
12. Verbal instructions are always given 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 K**) for the student athlete's current roommate/responsible friend to refer to as well.
13. A team physician or a Sports Medicine Fellow must be informed of all concussed athletes within 24-48 hours of injury.
 - a. If the student-athlete is transported to a medical facility, an above Sports Medicine physician must be notified immediately.
 - b. The concussed student-athlete must be seen by a Holy Cross Sports Medicine physician within 24-48 hours of injury unless travel interferes.
 - c. The team physician will evaluate the student-athlete and 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 may be required stay home from class while they recover, limit their time reading and doing class related work. 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.
 - d. Medical clearance will be granted in agreement between the team AT and treating physician.
14. Team physicians will refer any student-athlete with prolonged symptoms, longer than 2 weeks, to neurologists and/or neuropsychologists for further evaluation.



The College of the Holy Cross

Policy on Mild Traumatic Brain Injury/Concussion

Student-Athlete Concussion Education and Policy

ALL STUDENT-ATHLETES PLEASE READ AND SIGN

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

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

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

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

Acceptance of Risk: The College of the Holy Cross, in compliance with NCAA guidelines, reminds its student athletes of the inherent risks of injury 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: _____

CONCUSSION

A FACT SHEET FOR STUDENT-ATHLETES

WHAT IS A CONCUSSION?

A concussion is a brain injury that:

- Is caused by a blow to the head or body.
 - From contact with another player, hitting a hard surface such as the ground, ice or floor, or being hit by a piece of equipment such as a bat, lacrosse stick or field hockey ball.
- Can change the way your brain normally works.
- Can range from mild to severe.
- Presents itself differently for each athlete.
- Can occur during practice or competition in ANY sport.
- **Can happen even if you do not lose consciousness.**

HOW CAN I PREVENT A CONCUSSION?

Basic steps you can take to protect yourself from concussion:

- Do not initiate contact with your head or helmet. You can still get a concussion if you are wearing a helmet.
- Avoid striking an opponent in the head. Undercutting, flying elbows, stepping on a head, checking an unprotected opponent, and sticks to the head all cause concussions.
- Follow your athletics department's rules for safety and the rules of the sport.
- Practice good sportsmanship at all times.
- Practice and perfect the skills of the sport.

WHAT ARE THE SYMPTOMS OF A CONCUSSION?

You can't see a concussion, but you might notice some of the symptoms right away. Other symptoms can show up hours or days after the injury. Concussion symptoms include:

- Amnesia.
- Confusion.
- Headache.
- Loss of consciousness.
- Balance problems or dizziness.
- Double or fuzzy vision.
- Sensitivity to light or noise.
- Nausea (feeling that you might vomit).
- Feeling sluggish, foggy or groggy.
- Feeling unusually irritable.
- Concentration or memory problems (forgetting game plays, facts, meeting times).
- Slowed reaction time.

Exercise or activities that involve a lot of concentration, such as studying, working on the computer, or playing video games may cause concussion symptoms (such as headache or tiredness) to reappear or get worse.

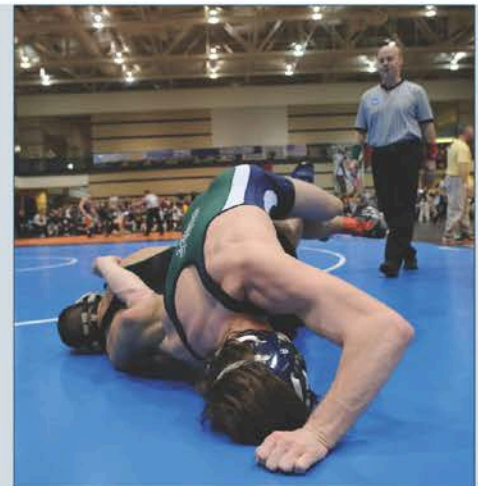
WHAT SHOULD I DO IF I THINK I HAVE A CONCUSSION?

Don't hide it. Tell your athletic trainer and coach. Never ignore a blow to the head. Also, tell your athletic trainer and coach if one of your teammates might have a concussion. Sports have injury timeouts and player substitutions so that you can get checked out.

Report it. Do not return to participation in a game, practice or other activity with symptoms. The sooner you get checked out, the sooner you may be able to return to play.

Get checked out. Your team physician, athletic trainer, or health care professional can tell you if you have had a concussion and when you are cleared to return to play. A concussion can affect your ability to perform everyday activities, your reaction time, balance, sleep and classroom performance.

Take time to recover. If you have had a concussion, your brain needs time to heal. While your brain is still healing, you are much more likely to have a repeat concussion. In rare cases, repeat concussions can cause permanent brain damage, and even death. Severe brain injury can change your whole life.



**IT'S BETTER TO MISS ONE GAME THAN THE WHOLE SEASON.
WHEN IN DOUBT, GET CHECKED OUT.**

For more information and resources, visit www.NCAA.org/health-safety and www.CDC.gov/Concussion.



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CONCUSSION

A FACT SHEET FOR COACHES

THE FACTS

- A concussion is a brain injury.
- All concussions are serious.
- Concussions can occur without loss of consciousness or other obvious signs.
- Concussions can occur from blows to the body as well as to the head.
- Concussions can occur in *any* sport.
- Recognition and proper response to concussions when they first occur can help prevent further injury or even death.
- Athletes may not report their symptoms for fear of losing playing time.
- Athletes can still get a concussion even if they are wearing a helmet.
- Data from the NCAA Injury Surveillance System suggests that concussions represent 5 to 18 percent of all reported injuries, depending on the sport.

WHAT IS A CONCUSSION?

A concussion is a brain injury that may be caused by a blow to the head, face, neck or elsewhere on the body with an “impulsive” force transmitted to the head. Concussions can also result from hitting a hard surface such as the ground, ice or floor, from players colliding with each other or being hit by a piece of equipment such as a bat, lacrosse stick or field hockey ball.

RECOGNIZING A POSSIBLE CONCUSSION

To help recognize a concussion, watch for the following two events among your student-athletes during both games and practices:

1. A forceful blow to the head or body that results in rapid movement of the head;
- AND-
2. Any change in the student-athlete’s behavior, thinking or physical functioning (see signs and symptoms).

SIGNS AND SYMPTOMS

Signs Observed By Coaching Staff

- Appears dazed or stunned.
- Is confused about assignment or position.
- Forgets plays.
- Is unsure of game, score or opponent.
- Moves clumsily.
- Answers questions slowly.
- Loses consciousness (even briefly).
- Shows behavior or personality changes.
- Can’t recall events before hit or fall.
- Can’t recall events after hit or fall.

Symptoms Reported By Student-Athlete

- Headache or “pressure” in head.
- Nausea or vomiting.
- Balance problems or dizziness.
- Double or blurry vision.
- Sensitivity to light.
- Sensitivity to noise.
- Feeling sluggish, hazy, foggy or groggy.
- Concentration or memory problems.
- Confusion.
- Does not “feel right.”



PREVENTION AND PREPARATION

As a coach, you play a key role in preventing concussions and responding to them properly when they occur. Here are some steps you can take to ensure the best outcome for your student-athletes:

- Educate student-athletes and coaching staff about concussion. Explain your concerns about concussion and your expectations of safe play to student-athletes, athletics staff and assistant coaches. Create an environment that supports reporting, access to proper evaluation and conservative return-to-play.
 - Review and practice your emergency action plan for your facility.
 - Know when you will have sideline medical care and when you will not, both at home and away.
 - Emphasize that protective equipment should fit properly, be well maintained, and be worn consistently and correctly.
 - Review the Concussion Fact Sheet for Student-Athletes with your team to help them recognize the signs of a concussion.
 - Review with your athletics staff the NCAA Sports Medicine Handbook guideline: Concussion or Mild Traumatic Brain Injury (mTBI) in the Athlete.
- Insist that safety comes first.
 - Teach student-athletes safe-play techniques and encourage them to follow the rules of play.
 - Encourage student-athletes to practice good sportsmanship at all times.
 - Encourage student-athletes to immediately report symptoms of concussion.
- Prevent long-term problems. A repeat concussion that occurs before the brain recovers from the previous one (hours, days or weeks) can slow recovery or increase the likelihood of having long-term problems. In rare cases, repeat concussions can result in brain swelling, permanent brain damage and even death.

IF YOU THINK YOUR STUDENT-ATHLETE HAS SUSTAINED A CONCUSSION:

Take him/her out of play immediately and allow adequate time for evaluation by a health care professional experienced in evaluating for concussion.

An athlete who exhibits signs, symptoms or behaviors consistent with a concussion, either at rest or during exertion, should be **removed immediately from practice or competition** and should not return to play until cleared by an appropriate health care professional. Sports have injury timeouts and player substitutions so that student-athletes can get checked out.



IF A CONCUSSION IS SUSPECTED:

1. **Remove the student-athlete from play.** Look for the signs and symptoms of concussion if your student-athlete has experienced a blow to the head. Do not allow the student-athlete to just “shake it off.” Each individual athlete will respond to concussions differently.
2. **Ensure that the student-athlete is evaluated right away by an appropriate health care professional.** Do not try to judge the severity of the injury yourself. Immediately refer the student-athlete to the appropriate athletics medical staff, such as a certified athletic trainer, team physician or health care professional experienced in concussion evaluation and management.
3. **Allow the student-athlete to return to play only with permission from a health care professional with experience in evaluating for concussion.** Allow athletics medical staff to rely on their clinical skills and protocols in evaluating the athlete to establish the appropriate time to return to play. A return-to-play progression should occur in an individualized, step-wise fashion with gradual increments in physical exertion and risk of contact.
4. **Develop a game plan.** Student-athletes should not return to play until all symptoms have resolved, both at rest and during exertion. Many times, that means they will be out for the remainder of that day. In fact, as concussion management continues to evolve with new science, the care is becoming more conservative and return-to-play time frames are getting longer. Coaches should have a game plan that accounts for this change.

IT'S BETTER THEY MISS ONE GAME THAN THE WHOLE SEASON. WHEN IN DOUBT, SIT THEM OUT.

For more information and resources, visit www.NCAA.org/health-safety and www.CDC.gov/Concussion.



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Balance Error Scoring System

Instructions: Complete each set for a 30 seconds for the parameters described below. Repeat until all 8 categories have a score. Scoring is based upon the number of errors that occur within those 30 seconds.

Athlete: _____ **Baseline Date:** _____ **Sport:** _____

| Errors | | Firm | Foam |
|--|--------------------|-------------|-------------|
| <ol style="list-style-type: none"> 1. Opening eyes 2. Hands off iliac crest 3. Step, stumble, fall 4. Lift forefoot or heel 5. >30 deg flexion or abduction 6. Out of position .5 sec | Double-Leg | | |
| | Single-Leg | | |
| | Tandem | | |
| | Sub-totals | | |
| | Total Score | | |



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?



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: _____



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 should be discussed with the student-athlete, parents (if a minor), athletic trainer, and physician after 3 or more concussions that resulted in a slow recovery.
- 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.

SCAT3™



Sport Concussion Assessment Tool – 3rd Edition

For use by medical professionals only

Name _____

Date/Time of Injury:
Date of Assessment: _____

Examiner: _____

What is the SCAT3?¹

The SCAT3 is a standardized tool for evaluating injured athletes for concussion and can be used in athletes aged from 13 years and older. It supersedes the original SCAT and the SCAT2 published in 2005 and 2009, respectively². For younger persons, ages 12 and under, please use the Child SCAT3. The SCAT3 is designed for use by medical professionals. If you are not qualified, please use the Sport Concussion Recognition Tool³. Preseason baseline testing with the SCAT3 can be helpful for interpreting post-injury test scores.

Specific instructions for use of the SCAT3 are provided on page 3. If you are not familiar with the SCAT3, please read through these instructions carefully. This tool may be freely copied in its current form for distribution to individuals, teams, groups and organizations. Any revision or any reproduction in a digital form requires approval by the Concussion in Sport Group.

NOTE: The diagnosis of a concussion is a clinical judgment, ideally made by a medical professional. The SCAT3 should not be used solely to make, or exclude, the diagnosis of concussion in the absence of clinical judgement. An athlete may have a concussion even if their SCAT3 is "normal".

What is a concussion?

A concussion is a disturbance in brain function caused by a direct or indirect force to the head. It results in a variety of non-specific signs and/or symptoms (some examples listed below) and most often does not involve loss of consciousness. Concussion should be suspected in the presence of **any one or more** of the following:

- Symptoms (e.g., headache), or
- Physical signs (e.g., unsteadiness), or
- Impaired brain function (e.g. confusion) or
- Abnormal behaviour (e.g., change in personality).

SIDELINE ASSESSMENT

Indications for Emergency Management

NOTE: A hit to the head can sometimes be associated with a more serious brain injury. Any of the following warrants consideration of activating emergency procedures and urgent transportation to the nearest hospital:

- Glasgow Coma score less than 15
- Deteriorating mental status
- Potential spinal injury
- Progressive, worsening symptoms or new neurologic signs

Potential signs of concussion?

If any of the following signs are observed after a direct or indirect blow to the head, the athlete should stop participation, be evaluated by a medical professional and **should not be permitted to return to sport the same day** if a concussion is suspected.

- Any loss of consciousness? Y N
 "If so, how long?" _____
- Balance or motor incoordination (stumbles, slow/laboured movements, etc.)? Y N
 Disorientation or confusion (inability to respond appropriately to questions)? Y N
 Loss of memory:
 "If so, how long?" _____
 "Before or after the injury?" _____
- Blank or vacant look: Y N
 Visible facial injury in combination with any of the above: Y N

1 Glasgow coma scale (GCS)

Best eye response (E)

| | |
|---------------------------------|---|
| No eye opening | 1 |
| Eye opening in response to pain | 2 |
| Eye opening to speech | 3 |
| Eyes opening spontaneously | 4 |

Best verbal response (V)

| | |
|-------------------------|---|
| No verbal response | 1 |
| Incomprehensible sounds | 2 |
| Inappropriate words | 3 |
| Confused | 4 |
| Oriented | 5 |

Best motor response (M)

| | |
|----------------------------|---|
| No motor response | 1 |
| Extension to pain | 2 |
| Abnormal flexion to pain | 3 |
| Flexion/Withdrawal to pain | 4 |
| Localizes to pain | 5 |
| Obeys commands | 6 |

Glasgow Coma score (E + V + M) _____ of 15

GCS should be recorded for all athletes in case of subsequent deterioration.

2 Maddocks Score³

"I am going to ask you a few questions, please listen carefully and give your best effort."

Modified Maddocks questions (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 | of 5 | |

Maddocks score is validated for sideline diagnosis of concussion only and is not used for serial testing.

Notes: Mechanism of Injury ("tell me what happened?"):

Any athlete with a suspected concussion should be REMOVED FROM PLAY, medically assessed, monitored for deterioration (i.e., should not be left alone) and should not drive a motor vehicle until cleared to do so by a medical professional. No athlete diagnosed with concussion should be returned to sports participation on the day of Injury.

BACKGROUND

Name: _____ Date: _____
 Examiner: _____
 Sport/team/school: _____ Date/time of injury: _____
 Age: _____ Gender: M F
 Years of education completed: _____
 Dominant hand: right left neither
 How many concussions do you think you have had in the past? _____
 When was the most recent concussion? _____
 How long was your recovery from the most recent concussion? _____
 Have you ever been hospitalized or had medical imaging done for a head injury? Y N
 Have you ever been diagnosed with headaches or migraines? Y N
 Do you have a learning disability, dyslexia, ADD/ADHD? Y N
 Have you ever been diagnosed with depression, anxiety or other psychiatric disorder? Y N
 Has anyone in your family ever been diagnosed with any of these problems? Y N
 Are you on any medications? If yes, please list: Y N

SCAT3 to be done in resting state. Best done 10 or more minutes post exercise.

SYMPTOM EVALUATION

3 How do you feel?

"You should score yourself on the following symptoms, based on how you feel now".

| | 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 |
| Trouble falling asleep | 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 |

Total number of symptoms (Maximum possible 22) _____

Symptom severity score (Maximum possible 132) _____

Do the symptoms get worse with physical activity? Y N

Do the symptoms get worse with mental activity? Y N

self rated self rated and clinician monitored
 clinician interview self rated with parent input

Overall rating: If you know the athlete well prior to the injury, how different is the athlete acting compared to his/her usual self?

Please circle one response:

no different very different unsure N/A

Scoring on the SCAT3 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. Since signs and symptoms may evolve over time, it is important to consider repeat evaluation in the acute assessment of concussion.

COGNITIVE & PHYSICAL EVALUATION

4 Cognitive assessment

Standardized Assessment of Concussion (SAC)⁴

Orientation (1 point for each correct answer)

| | | |
|--|---|---|
| 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

| List | Trial 1 | Trial 2 | Trial 3 | Alternative word list | | | | | |
|--------|---------|---------|---------|-----------------------|---|---|----------|---------|---------|
| elbow | 0 | 1 | 0 | 1 | 0 | 1 | candle | baby | finger |
| apple | 0 | 1 | 0 | 1 | 0 | 1 | paper | monkey | penny |
| carpet | 0 | 1 | 0 | 1 | 0 | 1 | sugar | perfume | blanket |
| saddle | 0 | 1 | 0 | 1 | 0 | 1 | sandwich | sunset | lemon |
| bubble | 0 | 1 | 0 | 1 | 0 | 1 | wagon | iron | insect |

Total _____

Immediate memory score total _____ of 15

Concentration: Digits Backward

| List | Trial 1 | Alternative digit list | | | |
|-------------|---------|------------------------|-------------|-------------|-------------|
| 4-9-3 | 0 | 1 | 6-2-9 | 5-2-6 | 4-1-5 |
| 3-8-1-4 | 0 | 1 | 3-2-7-9 | 1-7-9-5 | 4-9-6-8 |
| 6-2-9-7-1 | 0 | 1 | 1-5-2-8-6 | 3-8-5-2-7 | 6-1-8-4-3 |
| 7-1-8-4-6-2 | 0 | 1 | 5-3-9-1-4-8 | 8-3-1-9-6-4 | 7-2-4-8-5-6 |

Total of 4 _____

Concentration: Month in Reverse Order (1 pt. for entire sequence correct)

Dec-Nov-Oct-Sept-Aug-Jul-Jun-May-Apr-Mar-Feb-Jan 0 1

Concentration score _____ of 5

5 Neck Examination:

Range of motion _____ Tenderness _____ Upper and lower limb sensation & strength _____

Findings: _____

6 Balance examination

Do one or both of the following tests:

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

Modified Balance Error Scoring System (BESS) testing⁵

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

Testing surface (hard floor, field, etc.) _____

Condition

Double leg stance: _____ Errors

Single leg stance (non-dominant foot): _____ Errors

Tandem stance (non-dominant foot at back): _____ Errors

And/Or

Tandem gait^{6,7}

Time (best of 4 trials): _____ seconds

7 Coordination examination

Upper limb coordination

Which arm was tested: Left Right

Coordination score _____ of 1

8 SAC Delayed Recall⁴

Delayed recall score _____ of 5

INSTRUCTIONS

Words in *italics* throughout the SCAT3 are the instructions given to the athlete by the tester.

Symptom Scale

"You should score yourself on the following symptoms, based on how you feel now!"

To be completed by the athlete. In situations where the symptom scale is being completed after exercise, it should still be done in a resting state, at least 10 minutes post exercise.

For total number of symptoms, maximum possible is 22.

For Symptom severity score, add all scores in table, maximum possible is $22 \times 6 = 132$.

SAC⁴

Immediate Memory

"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&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."

Complete all 3 trials regardless of score on trial 1&2. Read the words at a rate of one per second. **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

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

If correct, go to next string length. If incorrect, read trial 2. **One point possible for each string length.** Stop after incorrect on both trials. 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 completion of the Balance and Coordination Examination.

"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

Balance Examination

Modified Balance Error Scoring System (BESS) testing⁵

This balance testing is based on a modified version of the Balance Error Scoring System (BESS)⁶. A stopwatch or watch with a second hand is required for this testing.

"I am now going to test your balance. Please take your shoes off, roll up your pant legs above ankle (if applicable), and remove any ankle taping (if applicable). This test consists 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."

Balance testing – types of errors

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

Each of the 20-second trials is scored by counting the errors, or deviations from the proper stance, accumulated by the athlete. The examiner will begin counting errors only after the individual 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 total number of errors for any single condition is 10.** If an 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 subject is set. Subjects 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 50cmx40cmx6cm).

Tandem Gait^{6,7}

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 meter 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. A total of 4 trials are done and the best time is retained. Athletes should complete the test in 14 seconds. 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. In this case, the time is not recorded and the trial repeated, if appropriate.

Coordination Examination

Upper limb coordination

Finger-to-nose (FTN) task:

"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."

Scoring: 5 correct repetitions in < 4 seconds = 1

Note for testers: Athletes fail the test if they do not touch their nose, do not fully extend their elbow or do not perform five repetitions. **Failure should be scored as 0.**

References & Footnotes

1. This tool has been developed by a group of international experts at the 4th International Consensus meeting on Concussion in Sport held in Zurich, Switzerland in November 2012. The full details of the conference outcomes and the authors of the tool are published in The BJSM Injury Prevention and Health Protection, 2013, Volume 47, Issue 5. The outcome paper will also be simultaneously co-published in other leading biomedical journals with the copyright held by the Concussion in Sport Group, to allow unrestricted distribution, providing no alterations are made.
2. McCrory P et al., Consensus Statement on Concussion in Sport – the 3rd International Conference on Concussion in Sport held in Zurich, November 2008. British Journal of Sports Medicine 2009; 43: i76-89.
3. Maddocks, DL; Dicker, GD; Saling, MM. The assessment of orientation following concussion in athletes. Clinical Journal of Sport Medicine. 1995; 5(1): 32-3.
4. McCrea M. Standardized mental status testing of acute concussion. Clinical Journal of Sport Medicine. 2001; 11: 176-181.
5. Guskiwicz KM. Assessment of postural stability following sport-related concussion. Current Sports Medicine Reports. 2003; 2: 24-30.
6. Schneiders, A.G., Sullivan, S.J., Gray, A., Hammond-Tooke, G. & McCrory, P. Normative values for 16-37 year old subjects for three clinical measures of motor performance used in the assessment of sports concussions. Journal of Science and Medicine in Sport. 2010; 13(2): 196-201.
7. Schneiders, A.G., Sullivan, S.J., Kvarnstrom, J.K., Olsson, M., Yden, T. & Marshall, S.W. The effect of footwear and sports-surface on dynamic neurological screening in sport-related concussion. Journal of Science and Medicine in Sport. 2010; 13(4): 382-386

ATHLETE INFORMATION

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

- Have a headache that gets worse
- Are very drowsy or can't be awakened
- Can't recognize people or places
- Have repeated vomiting
- Behave unusually or seem confused; are very irritable
- Have seizures (arms and legs jerk uncontrollably)
- Have weak or numb arms or legs
- Are unsteady on their feet; have slurred speech

Remember, it is better to be safe.

Consult your doctor after a suspected concussion.

Return to play

Athletes should not be returned to play the same day of injury.

When returning athletes to play, they should be **medically cleared and then follow a stepwise supervised program**, with stages of progression.

For example:

| Rehabilitation stage | Functional exercise at each stage of rehabilitation | Objective of each stage |
|-----------------------------|--|---|
| No activity | Physical and cognitive rest | Recovery |
| Light aerobic exercise | Walking, swimming or stationary cycling keeping intensity 70% maximum predicted heart rate. No resistance training | Increase heart rate |
| Sport-specific exercise | Skating drills in ice hockey, running drills in soccer. No head impact activities | Add movement |
| Non-contact training drills | Progression to more complex training drills, eg passing drills in football and ice hockey. May start progressive resistance training | Exercise, coordination, and cognitive load |
| Full contact practice | Following medical clearance participate in normal training activities | Restore confidence and assess functional skills by coaching staff |
| Return to play | Normal game play | |

There should be at least 24 hours (or longer) for each stage and if symptoms recur the athlete should rest until they resolve once again and then resume the program at the previous asymptomatic stage. Resistance training should only be added in the later stages.

If the athlete is symptomatic for more than 10 days, then consultation by a medical practitioner who is expert in the management of concussion, is recommended.

Medical clearance should be given before return to play.

Scoring Summary:

| Test Domain | Score | | |
|-------------------------------|-------------|-------------|-------------|
| | Date: _____ | Date: _____ | Date: _____ |
| Number of Symptoms of 22 | | | |
| Symptom Severity Score of 132 | | | |
| Orientation of 5 | | | |
| Immediate Memory of 15 | | | |
| Concentration of 5 | | | |
| Delayed Recall of 5 | | | |
| SAC Total | | | |
| BESS (total errors) | | | |
| Tandem Gait (seconds) | | | |
| Coordination of 1 | | | |

Notes:

CONCUSSION INJURY ADVICE

(To be given to the **person monitoring** the concussed athlete)

This patient has received an injury to the head. A careful medical examination has been carried out and no sign of any serious complications has been found. Recovery time is variable across individuals and the patient will need monitoring for a further period by a responsible adult. Your treating physician will provide guidance as to this timeframe.

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

Other important points:

- Rest (physically and mentally), including training or playing sports until symptoms resolve and you are medically cleared
- No alcohol
- No prescription or non-prescription drugs without medical supervision. Specifically:
 - No sleeping tablets
 - Do not use aspirin, anti-inflammatory medication or sedating pain killers
- Do not drive until medically cleared
- Do not train or play sport until medically cleared

Clinic phone number _____

Patient's name _____

Date/time of injury _____

Date/time of medical review _____

Treating physician _____

Contact details or stamp

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 |

| | | | | | | | |
|----------------------------------|--|--|--|--|--|--|--|
| Name: | | | | | | | |
| Symptoms | | | | | | | |
| 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 | | | | | | | |
| Ringing in the Ears | | | | | | | |
| Sadness | | | | | | | |
| Seeing Stars | | | | | | | |
| Sensitivity to Light | | | | | | | |
| Sensitivity to Noise | | | | | | | |
| Sleep Disturbances | | | | | | | |
| Vacant Stares/Glassy Eyes | | | | | | | |
| Vomiting | | | | | | | |
| TOTAL SYMPTOM SCORE: | | | | | | | |



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)

| 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

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: _____