

# **BELMONT ABBEY COLLEGE ATHLETICS**

## **CONCUSSION SAFETY PROTOCOL**

**Revised March 6, 2024**

## 1. Introduction

The Belmont Abbey College Athletic Training Department remains committed to ensuring the health and safety of its student-athletes. As a result of this commitment, a growing body of research supporting increased efforts to recognize and manage sport-related concussions (SRC), and current NCAA legislation, Belmont Abbey Athletic Training has put in place the following Concussion Safety Protocol to educate student-athletes, coaches, athletics staff, and college faculty about, recognize signs and symptoms of, and manage the return to play and return to learning following SRC.

The guidelines set forth in this protocol are consistent with the "Consensus statement on concussion in sportL the 6th International Conference on Concussion in Sport", recommendations by the National Athletic Trainers' Association, and current NCAA legislation.

## 2. Definition

A panel of SRC researchers and clinicians specializing in SRC management have recently (2022) updated the previous definition of SRC. The new definition is 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).”

Some of the physical signs, or things a healthcare provider can see without having to have them reported, that may be observed with a concussion are:

- Lying motionless on the playing surface (loss of consciousness; “blacking out”)
- Falling unprotected to the playing surface
- Balance/gait difficulties (motor incoordination, stumbling, slow/labored movements)
- Disorientation or confusion, staring or limited responsiveness, or the inability to respond appropriately to questions
- Blank or vacant look
- Facial injury after head trauma
- Impact seizure
- High-risk mechanism of injury (big hit to the head; illegal contact; high speed collision; contact with ball/equipment)

A concussion may be accompanied by any combination of the following symptoms (problems reported to the healthcare provider by the injured athlete) in any degree of severity:

- Headache, pressure in the head, and/or neck pain
- Nausea or vomiting
- Dizziness
- Balance problems
- Feeling “slowed down”
- Drowsiness and/or trouble sleeping
- Sensitivity to light and/or noise
- Difficulty remembering events before OR after the concussion
- Difficulty concentrating and/or thinking
- Vision problems, including blurry and/or double vision
- Sense of excessive fatigue
- Irritability, overly emotional, nervous, anxious, or other behavioral abnormalities

It is essential to recognize that each concussion is unique and individuals may present with different patterns or combinations of signs and symptoms and that the above lists are representative in nature and do not represent all of the possible problems that may be present with concussion

### **3. Student-Athlete Education/Responsibility**

Prior to each playing season, a member of the athletic training staff will conduct a short presentation on the definition and mechanisms of SRC, signs and symptoms of SRC, and the tenets of this management plan including the Return To Sport and Return To Learn protocol. All student-athletes will sign an acknowledgement that this information was presented to them, that they accept the responsibility for accurately reporting their symptoms to the medical staff in a timely manner, and that they have had the opportunity to ask questions about it. This acknowledgement will be kept on file with the medical staff as well as the institutional compliance coordinator.

### **4. Athletics Staff Education/Responsibility**

All members of the Belmont Abbey College Athletic Department will undergo an annual education session that will include the definition and mechanisms of SRC, signs and symptoms of SRC, and the tenets of this management plan. They will sign an acknowledgement that this information was presented to them, that they understand their below responsibility within it, and that they have had an opportunity to ask questions about it. This acknowledgement will be kept on file with the medical staff as well as the institutional compliance coordinator.

The coaching staff of the individual who has sustained a SRC has a unique responsibility to ensure a safe return to sport. It is the duty of the coaching staff to:

- Ensure that the athletic training staff is allowed to perform their assessment of individuals who may have sustained a SRC free of unnecessary pressure or influence to return the individual before they are ready.
- Not encourage or influence student-athletes to hide or under report symptoms in an attempt to hasten their return to play.
- Inform the medical staff of any changes in the athletes' condition (both positive and negative) and to encourage the student-athlete to also report the same.
- Not require or encourage additional exercise or cognitive activity beyond what is recommended for the stage of recovery and/or return to play/learn that the student-athlete may be on at the time.

## 5. Sport-Related Concussion Evaluation/Case Management

Consistent with NCAA legislation, medical personnel with training in the diagnosis, treatment and initial management of acute concussion must be **“present”** (on site at the campus or arena of the competition) at all NCAA **competitions** for the following contact/collision sports sponsored by Belmont Abbey College:

- Acrobatics and Tumbling
- Baseball
- Field hockey
- Lacrosse
- Pole vault
- Rugby
- Soccer
- Softball
- Volleyball
- Wrestling.

Consistent with NCAA legislation, medical personnel with training in the diagnosis, treatment and initial management of acute concussion must be **“available”** (can be contacted at any time during the practice via immediate communication means to discuss the case and make arrangements to be evaluated further” at all NCAA **practices** for the same above listed sports.

**Per NCAA legislation, student-athletes may not return to play on the same calendar day in which the injury occurred if a concussion is suspected or confirmed.**

Student-athletes at Belmont Abbey College will have their concussions evaluated in three ways:

### 1. Pre-Season/Baseline Evaluation

- a. Prior to the start of any practice or competition, all Belmont Abbey College student-athletes must have a baseline evaluation on file with the Athletic Training Staff.
- b. The baseline evaluation will consist of the following:
  - i. Neuropsychological Testing (ImPACT) – quantifies athlete’s cognitive status including reaction time, memory, and processing speed
  - ii. Balance Assessment (BTrackS) – quantifies athlete’s postural control and static balance.
- c. Student-athletes who sustain a concussion during a given school year will be required to retake the Neuropsychological Testing portion of the baseline evaluation the following school year to establish a new, healthy baseline for comparison.

## 2. Sideline/On-Field Evaluation

- a. Student-athletes should first be evaluated using standard emergency management principles, with particular attention being given to excluding cervical spine injury. The following conditions should warrant consideration of activation of the Emergency Action Plan: neck pain or tenderness, seizure or convulsions, 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, GCS <15, or visible deformity of the skull
- b. Signs that warrant immediate removal from the field include: actual or suspected loss of consciousness, seizure, tonic posturing, ataxia, poor balance, confusion, behavioral changes, and amnesia.
- c. Student-athletes should be evaluated by the appropriate health care provider. Evaluation should not take place by a coach or game official.
- d. Any individual displaying symptoms of a SRC, following a reasonable mechanism, will be withheld from participation.
- e. All student-athletes sustaining a SRC will be evaluated with the SCAT6 (Sport Concussion Assessment Tool, v6.0). This assessment may be completed prior to the decision to remove an athlete from participation to assist with the diagnosis or after the decision has been made to more fully evaluate the extent of the injury. Any sideline/on-field evaluation of concussion should take place after the injured student-athlete has been removed from practice or competition or that play has stopped which the evaluation can take place.
- f. Once a concussion is diagnosed, it should be documented that the post-concussion plan of care was communicated to both the student-athlete and another adult responsible for the student-athlete (head coach at minimum; parent may be a suitable alternative) in both written and oral form (NCAA Concussion Fact Sheet)

## 3. Off-Field/Follow Up Evaluation

- a. Student-athletes who are diagnosed as having a SRC will be serially evaluated for symptom progression using a standard checklist. Ideally, this assessment will be performed/supervised daily by a member of the athletic training staff.
  - i. Other areas that may be included for evaluation as the case warrants are: immediate and delayed memory, concentration, orthostatic vital signs (BP, pulse), cervical spine, neurologic evaluation, balance, VOMS, mental health concerns, sleep quality, graded exercise testing
- b. Student-athletes with a SRC will be referred to a team physician for evaluation.
- c. Student-athletes may, under supervision, begin light, symptom-limited aerobic physical activity within 24-48 hours but should reduce screen use/exposure for the first 48 hours following injury.
- d. Commencement of return to sport protocol and final clearance for return to play will be established by the team physician and will be carried out by the athletic training staff. This may include subsequent neuropsychological and balance testing and/or office visits.
- e. Neuropsychological testing following an injury will occur once the student-athlete is symptom free and be used to confirm that there are no cognitive deficits prior to an athletes' return to play unless otherwise requested by the supervising physician. No more than two (2) NP tests should be administered in a given 7 day period.
- f. Student-athletes will also complete post-injury balance testing (BTrackS). These scores will be interpreted by the team physician when evaluating fitness for return to play. This test can be completed daily to provide multiple data points for evaluation and to display pro- or regression.

Student-athletes presenting with persisting symptoms (signs and symptoms present for >4 weeks) may undergo a more thorough evaluation and or be referred to a concussion specialist (Dr. Wiercisiewski, Director of Carolina Sports Concussion Program through Carolina Neurosurgery and Spine Associates) for case management and to consider and rule out/in additional diagnoses that may be contributing to the protracted recovery.

## 6. Return to Sport (RTS) Protocol

Per NCAA legislation, student-athletes may not return to play on the same calendar day in which the injury occurred if a concussion is suspected or confirmed.

The exercise progression for an athlete to return to play following a SRC may begin within 24-48 hours of injury. The decision of when to start the RTS protocol will rest with the athletic trainer and supervising team physician.

Recent research suggests that light physical activity and prescribed subsymptom threshold aerobic exercise can serve as treatment for concussion. This has led to a reorganization of the Return To Sport protocol wherein the first three stages are viewed more as treatment and the latter two stages are viewed more as preparation for competition. **Progression through each stage should take a minimum of 24 hours and be personally supervised by an athletic trainer.** See the below updated RTS stages:

Stage 1\*: Daily activities that do not result in a mild and brief exacerbation of symptoms

Stage 2\*: Aerobic exercise; light then moderate; not to exceed 70% max HR

Stage 3\*: Individual sport specific exercise that does not involve any risk of head contact

Stage 4^: Non-contact training drills

Stage 5^: Full practice

**\*Progression may take place as long as symptom exacerbation is mild and brief**

**^Stages 4 and 5 may not begin until symptoms have fully resolved and symptoms must stay resolved through Stages 4 and 5 to consider the RTS protocol as being completed**

If, during any of the stages of the protocol, symptom exacerbation is more than mild and brief (more than 2 points on a 0-10 scale for more than 1 hour after activity) the student-athlete should stop activity and the stage the next day.

Prior to final clearance, the following criteria must be met:

1. Successful passage of the Return to Sport protocol as described above.
2. Return of Neuropsychological Testing scores to within baseline tolerance.
3. Return of BTrackS scores to within baseline tolerance.
4. Completion of Return to Learn protocol, if applicable.

If **ANY** of these four criteria are not met, the individual will not be allowed to return to unrestricted participation in their sport.

The team physician grants final clearance for return to play. If extenuating circumstances prevent clearance after the RTS protocol is completed (team is on the road, etc.), a conditional clearance may be obtained, **at the discretion of the team physician** (ex. "If the scores return to "X" and there are no symptoms with "Y", he/she is cleared).



## 7. Return to Learn (RTL) Protocol

Some student-athletes may require academic accommodations in response to their SRC and associated symptom presentation. The following guidelines will be considered when deciding what, if any, accommodations should be made:

- A. Entrance to the RTL protocol MUST be recommended by the team physician and be accompanied by a letter of medical necessity.
- B. This letter will be sent from the assessing member of the Athletic Training Staff to the **Coordinator of Accessibility Services (Carrie Minnich; [carrieminnich@bac.edu](mailto:carrieminnich@bac.edu); 704-461-6228)** so that the student-athletes professors may be notified and accommodations may be met.
- C. The student-athlete is expected to notify medical staff of their condition (as it improves or deteriorates), what accommodations they feel would help them complete their classwork, and whether or not additional accommodations are needed. The medical staff may evaluate the student-athlete's ability to handle cognitive activity before making a recommendation to be excused from class.
- D. Specific accommodations are at the discretion of the team physician but may include but are not limited to excused absence from class or a modified schedule to allow cognitive rest, additional time on assignments, altered testing environment, and/or assistance with note taking (audio recorders, etc.)
- E. It is the responsibility of the student-athlete to communicate with their professors, following submission of the letter of medical necessity, to arrange for specific accommodations such as extensions on tests or other assignments. The medical staff will support the need for these accommodations, but the student must be the one who coordinates time and dates.
- F. The student-athlete who is receiving academic accommodations WILL NOT be fully cleared for unrestricted athletic participation until they are able to handle a full class load without them and have arrangements to make up any missed work/assessments.
- G. Full return to academics and classroom activity will follow the following stages:
  - a. Stage 1: Daily activities that do not exacerbate symptoms
  - b. Stage 2: School activities outside of the classroom
  - c. Stage 3: Part time return to classroom (specific expectations to be discussed between athlete and athletic trainer and communicated to the Coordinator of Accessibility Services)
  - d. Stage 4: Full time return to classroom (at this point any missed work or tests/quizzes should be scheduled for makeup)
- H. Some athletes may be able to resume some classroom activity right away and not require a period of full excusal. This determination should be made in concert with the student athlete's symptom presentation and a cognitive evaluation.

## 8. Other Considerations

### Emergency Referral and/or Neuroimaging

As previously mentioned, it has been recognized that conventional neuroimaging contributes little to the *evaluation* process of SRC. Neuroimaging is most useful for identifying structural lesions within the brain.

Emergency referral and/or neuroimaging will be considered in cases where there is acute mental status deterioration, prolonged presence of symptoms, or focal neurologic deficits (as described above in section 5.2).

### Other SRC “Modifiers”

There are many factors that may affect the management and return to play of an athlete’s SRC. The relevant factors are displayed below:

Factor	Modifier
Symptoms	Number, duration, severity
Signs	Prolonged LOC, amnesia
Sequelae	Concussive convulsions
Temporal	Frequency, timing, recency
Threshold	Concussion occurs with less force each time
Age	< 18yrs old
Co- or pre-morbidities	Headache, mental health, attention and/or sleep disorders
Medication	Psychoactive drugs, anticoagulants
Behavior	Dangerous/illegal style of play
Sport	Contact and collision sports

### Second Impact Syndrome

Second impact syndrome (SIS) is a condition wherein an athlete who has not completely recovered from a SRC receives a subsequent blow to their head. This “second impact” causes severe and rapid brain swelling which can lead to death within minutes and requires immediate medical attention. Given the grave nature of this condition, special attention will be given to the return to play decision and forms the rationale for the statement that no athlete who exhibits SRC symptoms will be allowed to return to play/practice on the same day they received their injury.

### Medical Disqualification/Retirement

The decision to permanently end one's playing career due to concussion is a serious one that requires the input of many different stakeholders including, but not limited to the student-athlete and their family, the College’s medical team, and outside medical providers. There is not currently a great deal of well-designed research that clearly supports or refutes many of the proposed long-term outcomes of concussions, including mental health disorders, cognitive impairment, neurological disorders (including CTE), and neurodegenerative diseases nor is there clear evidence of the factors that, if present, would unequivocally lead to retirement or discontinued participation in contact or collision sports. Any conversation regarding medical retirement due to concussion should include medical providers with expertise in traumatic brain injury, should weigh the sport-specific risks and benefits to continued participation, and be sensitive to the student-athlete’s preferences and risk tolerance.