

Liberty University Sports Medicine Concussion / Traumatic Brain Injury Protocol

The Liberty University Sports Medicine Department recognizes that head injuries, particularly sport-induced concussions, pose a significant health risk for those student-athletes participating in intercollegiate athletics at the University. Consequently, Liberty University has implemented policies and procedures to assess and identify those student-athletes who have suffered a concussion.

These policies and procedures are directed and overseen by the team physician for Liberty University Athletics. The Team Physician or designee has final say over all return-to-play decisions. The following components have been identified by the NCAA as a recommended best practice for a Concussion / Traumatic Brain Injury Management Plan.

What is a Concussion?

Concussions are the most common form of head injury suffered by athletes. Due to the complexity of the injury and ever-growing research, a unanimous definition of "concussion" does not exist. A concussion can be caused by a direct or indirect hit to the head or body and can result in a disturbance and/or impairment in neurologic function. When an athlete suffers a concussion, the brain suddenly shifts or shakes inside the skull and can knock against the skull's bony surface. A hard hit to the body can result in an acceleration and/or deceleration injury when the brain brushes against bony protuberances inside the skull. The exact recovery period from this trauma is unclear and will vary from individual to individual.

Following a concussion, the athlete may experience a variety of symptoms. Most concussions occur without a loss of consciousness. It is important to remember that some symptoms may appear right away and some may be delayed. Symptoms, as well as symptom severity, may differ between individuals; however, a combination of symptoms classically occurs.

Some Signs and Symptoms:

Signs:

- Difficulty concentrating
- Inappropriate playing behavior
- Decreased playing ability
- Inability to perform daily activities
- Reduced attention
- Cognitive and memory dysfunction
- Sleep disturbances
- Vacant stare
- Loss of bowel and/or bladder control
- Personality change
- Unsteadiness of gait
- Slurred/incoherent speech
- Loss of consciousness

Symptoms:

- Nausea/vomiting
- Dizziness
- Confusion
- Fatigue
- Light headedness
- Headaches
- Irritability
- Disorientation
- Seeing bright lights/stars
- Feeling of being stunned
- Depression
- Ringing in the ears

Notification of Injury/Symptoms:

Due to the serious nature of this injury and potential dangerous results of returning to activity, concussions need to be recognized and diagnosed as soon as possible. It is required that student-athletes be truthful and forthcoming about their symptoms as soon as they are present. If/when he or she is diagnosed with a concussion, the student-athlete must report symptoms each day until he or she is cleared for full activity by the Team Physician or designee.

Concussion Education:

In accordance with NCAA recommendations, student-athletes will be annually presented with educational materials that provide information about the mechanisms of head injury, as well as the signs and symptoms of a concussion. Subsequently, it will be required that all student-athletes sign the Liberty University Student-Athlete Concussion Statement, a statement accepting the responsibility for truthfully reporting of his or her injuries and illnesses, including signs and symptoms of a concussion.

Additionally, each coach (including volunteer coaches) at Liberty University will undergo concussion education and will be required to sign the Liberty University Coaches Concussion Statement.

Due to the severe nature of a concussion, Liberty University believes in a conservative approach for treatment. This includes the student-athlete self-reporting his or her symptoms after suffering a concussion. Self-reporting of symptoms plays an integral role in tracking the severity and subsequent recovery of a concussion. Therefore, the student-athlete is responsible for reporting his or her signs and symptoms completely and honestly to the staff Certified Athletic Trainer and/or Team Physician as soon as they present and each day following the injury.

Baseline Testing:

A baseline assessment consisting of both subjective and objective tests, standardized cognitive and balance assessments, and physical evaluation will be performed on student-athletes deemed "high risk athletes," defined by the NCAA as baseball, basketball, field hockey, football, lacrosse, soccer and softball, before the start of their competitive season.

Student-athletes will be baseline tested using the:

- Standardized Assessment of Concussion (SAC)
- Balance Error Scoring System (BESS)

Recognition, Evaluation and Confirmation:

When a student-athlete shows any signs, symptoms or behaviors consistent with a concussion, the athlete shall be immediately removed from athletic participation until a thorough sideline head injury assessment can be performed by the Team Physician and/or staff Certified Athletic Trainer. The sideline head injury assessment to determine the presence of a concussion will include:

- Head Injury Initial Evaluation Form

The Team Physician and/or staff Certified Athletic Trainer should suspect a concussion if any non-baseline symptoms are detected after a blow to the head. In addition, SAC/BESS scores inconsistent with baseline scores should be interpreted as a possible concussion resulting in the removal of the athlete from athletic participation. If a staff Certified Athletic Trainer determines that a student-athlete has or may have a concussion, the staff Certified Athletic Trainer must report that fact to the student-athlete's head coach and the Team Physician. The student-athlete must be evaluated by the Team Physician and/or appropriate qualified medical personnel acceptable to the Team Physician as soon after the concussion as is practical. Furthermore, the concussed student athlete must agree to see the Team Physician and/or appropriate qualified medical personnel as soon after the concussion is practical.

Same Day Return-to-Play:

A student-athlete diagnosed with a concussion shall be withheld from the competition or practice and **will not return to any athletic activity for the remainder of that day** and until cleared by the Team Physician and/or appropriate qualified medical personnel acceptable to the Team Physician.

Referrals:

Upon removal from athletic participation, the student-athlete will receive serial monitoring (approximately every 5 minutes) for signs of deterioration which can cease when the student-athlete stabilizes and improves or in the event the student-athlete's condition warrants a referral according to the guidelines set forth herein.

On-the-Field Immediate Referral:

Upon initial evaluation, activation of the appropriate Emergency Action Plan and subsequent immediate referral to an appropriate emergency treatment facility is warranted with any of the following findings:

- Prolonged loss of consciousness
- Deteriorating level of consciousness
- High index of suspicion of spine or skull injury
- Seizure activity
- Evidence of hemodynamic instability/deterioration of vital signs

Off-the-Field Immediate Referral:

In the event that the student-athlete shows signs of deterioration from the status originally assessed on the field, an emergency off the field assessment is required and subsequent immediate referral to an appropriate emergency treatment facility is warranted with any of the following findings:

- Deterioration of neurological signs such as motor, sensory and cranial nerve deficits subsequent to initial on-field assessment
- Documented loss of consciousness
- Deteriorating level of consciousness
- Persistent vomiting
- Post-concussion symptoms that worsen

Non-Immediate Referral:

All student-athletes who have been diagnosed with a concussion will be evaluated by the Team Physician or designee under the direction of the team physician prior to return to unrestricted activity.

Follow-Up Care:

In the event of a concussion, follow-up care and proper education is critical. Due to the necessity of serial monitoring for deterioration of symptoms, the student-athlete will be released under the care of an on-campus emergency contact when discharged from the care of the staff Certified Athletic Trainer and/or Team Physician. The Concussion Take-Home Instructions will be explained and given to both the concussed student-athlete as well as the on-campus emergency contact. Pertinent contact information will be provided in addition to scheduled follow up appointments.

The concussed student-athlete will be contacted 3-4 hours after discharge to ensure appropriate arousal and cognitive function. In the circumstance that neither the concussed student-athlete nor the on-campus emergency contact can be contacted, the situation will be deemed emergent and the Liberty University Campus Safety will be alerted.

Subsequent Testing:

Concussed student-athletes will be assessed daily with the assistance of the SCAT2 symptom checklist until released by the Team Physician or designee. Student athletes will be given a SAC/Bess test within 24 hours of a concussion episode. The athlete will again be tested once they report asymptomatic and again every 24 hours until their scores are within 95% of baseline.

Return to Play Guidelines:

Return-to-play is the process of deciding when an injured or ill student-athlete may safely return to practice or competition. It is the goal of Liberty University to return an injured or ill student-athlete to practice or competition without putting the individual or others at undue risk for injury or illness.

When an asymptomatic status has been established and neurocognitive scoring has returned to the baseline level, a progression will be utilized for return to play. The progression is a step-by-step procedure where an asymptomatic level is maintained as functional exercise is slowly added to the activity level. In severe cases progression to each subsequent stage occurs roughly every 24 hours, based on each individual's status. Progressions are individualized on a case by case basis. The student-athlete may not progress to the next step until they are completely symptom free in the current step. The staff Certified Athletic Trainer will be in direct contact with the Team Physician while progressing the student-athlete through the program. Only the Team Physician or designee under the direct supervision of the team physician can give the athlete clearance to return to athletic participation. It is important to note that this timeline could last over a period of days, weeks, months or ultimately result in potential medical disqualification from the participation in Liberty University Athletics.

The return to play progression is a 6 step process.

1. **No activity-** Directly after being diagnosed with a concussion, the athlete should have total physical and mental rest. Once the student-athlete is asymptomatic at rest and baseline scores for the SAC and BESS are at 95% of their baseline score the student-athlete may progress to the next step.
2. **Light aerobic exercise-** Walking, swimming, or biking while keeping heart rate below 70% of max.
3. **Sport-specific exercise-** Basic low impact drills associated with the athletes sport. (No head impact activities)
4. **Non-contact training drills-** Progress to more complex drills.
5. **Full contact Practice-** After receiving medical clearance, athlete may resume normal training activities.
6. **Return to Play**

Reference Documents

1. Concussion (Mild Traumatic Brain Injury) and The Team Physician: a Consensus Statement. *Medicine & Science in Sports & Exercise* (2006). 395-399.
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3. McCrory, P., Meeuwisse, W., Johnston, K., Dvorak, J., Aubry, M., Molloy, M., et. al. (2009). Summary and Agreement Statement of the 3rd International Conference on Concussion in Sport Zurich, 2008. *Clinical Journal of Sports Medicine*, 19, 185-200.
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5. Memorandum: Concussion Management Plan. NCAA Committee on Competitive Safeguards and Medical Aspects of Sports (CSMAS). (2010). 1-5.
6. Practice Parameter: The Management of Concussion in Sports (Summary Statement). *Neurology* (1997), 48, 581-585.
7. The Team Physician and Return-to-Play Issues Consensus Statement. *Medicine & Science in Sports & Exercise* (2002).

