

University of Utah Sports Medicine Concussion Management Plan

University of Utah Sports Medicine Concussion Management Plan

1. Overview

- 1.1. In response to the growing concern over concussion in athletics and the memorandum issued by the NCAA (dated April 30, 2010) requesting that “institutions shall have a concussion management plan on file”, the following document serves as such.
- 1.2. The following components will be outlined as part of a comprehensive concussion management plan:
 - 1.2.1. Concussion Overview (section 2)
 - 1.2.2. Concussion Education for Student-Athletes (section 3)
 - 1.2.3. Concussion Education for Coaches and Staff (section 4)
 - 1.2.4. Emergency Action Plan (section 5)
 - 1.2.5. Pre-season concussion assessment (section 6)
 - 1.2.6. Concussion action plan (section 7)
 - 1.2.7. Appendix A: Personnel Roles
 - 1.2.8. Appendix B: Immediate Post Concussion Instructions
 - 1.2.9. Appendix C: Symptom Diary and checklist
 - 1.2.10. Appendix D: Return to School recommendations
 - 1.2.11. Appendix E: Concussion Awareness Letter to Teacher/Administrator
 - 1.2.12. Appendix F: Return to Play Protocol

2. What is a Concussion

- 2.1. Concussion, or mild traumatic brain injury (mTBI), has been defined as “a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces.” Although concussion most commonly occurs after a direct blow to the head, it can occur after a blow elsewhere that is transmitted to the head.
- 2.2. The following signs and symptoms are associated with concussions:

Loss of consciousness (LOC)	Disequilibrium
Confusion	Feeling ‘in a fog’, ‘zoned out’
Post-traumatic Amnesia (PTA)	Vacant stare, ‘glassy eyed’
Retrograde Amnesia (RGA)	Emotional lability
Disorientation	Dizziness
Delayed verbal and motor responses	Slurred/incoherent speech
Inability to focus	Visual Disturbances, including light sensitivity, blurry vision, or double vision
Headache	Excessive Drowsiness
Nausea/Vomiting	

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3. Concussion Education for Student Athletes

- 3.1. During the orientation and signing process student-athletes will be presented with a discussion about concussions. Student-athletes will also be introduced to the concussion education (Video, handouts, NCAA Concussion fact sheet, policy, educations links, etc.) available on the Canvas web site.
- 3.2. The discussion will also include an emphasis that purposeful or flagrant head or neck contact in any sport should not be permitted and can result in serious life threatening injury.
- 3.3. The University of Utah Athletic Department shall require student-athletes to sign a statement or complete the quiz on Canvas, in which student-athletes accept the responsibility for reporting their injuries and illnesses to the institutional medical staff, including signs and symptoms of concussions.

4. Concussion Education for Coaches and Staff

- 4.1. The University of Utah Athletic Department will educate coaches, Directors of Athletics, Team Physicians and Athletic Training staff concerning concussions by presenting a discussion on concussion and/or have them review the concussion education (Video, handouts, NCAA Concussion fact sheet, policy, educations links, etc.) available on the Canvas web site.
- 4.2. The coaches will also have their role within the plan described, outlined in detail in Appendix A. Briefly, their role is to remove any student-athlete that shows any sign of concussion, make sure that they are evaluated by the appropriate health care professional, and to only allow the student-athlete to return to play after receiving clearance from the appropriate health care professional.
- 4.3. The University of Utah Athletic Department shall require coaches, Directors of Athletics, Team Physicians and Athletic Training staff to sign a statement or completing the quiz on Canvas, in which they accept the responsibility for their role and completing their education.
- 4.4. Additional education will occur with football coaching staff and other contact sports as it applies. This education will consist of: review of interassociation consensus of Year-Round Football Practice Contact Recommendations and Independent Medical Care for College Student-Athletes Best Practices, need to reduce gratuitous contact during practice, taking a safety-first approach to sport, teaching proper skills to take the head out of contact, and coaching and student-athlete education regarding safe play and proper technique.

5. Emergency Action Plans

- 5.1. Emergency action plans for each venue are posted on the wall and/or in the emergency binder located in each Athletic Training Room. The emergency action plans are designed to help in response to student-athlete catastrophic injuries and illnesses, including but not limited to concussions, heat illness, spine injury, cardiac arrest, respiratory distress (e.g. asthma), and sickle cell trait

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collapses. These plans are reviewed at the beginning of each year during the orientation seminar.

6. Pre-season concussion assessment

6.1. All Student Athletes will receive pre-season baseline assessments, which consist of brain injury and concussion history during Pre Participation Physical, ImPact and BESS Testing. The team physician will make the final pre-participation clearance determination.

6.2. Baseline testing will consist of:

6.2.1. Standardized Symptom Checklist

6.2.1.1. This will be obtained as part of ImPACT testing (see 6.2.2 below)

6.2.2. Computerized Neuropsychological Testing with ImPACT.

6.2.2.1. ImPACT is a computerized program designed to measure specific brain functions that may be altered after a concussion. The program is designed such to allow athletes to be tested pre-season so that post injury performance may be compared to the athlete's own baseline.

6.2.2.2. ImPACT may be administered by the athletic trainers in a controlled computer lab like environment

6.2.2.3. ImPACT baseline data will be reviewed by the Athletic Training Staff. Abnormal test results will be referred to the team physician for consultation.

6.2.2.2.1. Scenarios where the baseline will be repeated and continued abnormal test results will then be consulted with the Team Physician:

6.2.2.2.1.1. Single composite score on Impact testing below the 10th percentile

6.2.2.2.1.2. An Impulse Control Composite score on ImPact testing above 20

6.2.2.2.2. Scenarios where consultation with the Team Physician will be appropriate:

6.2.2.2.2.1. An individual with diagnosed mental health disorder, learning disability, a concussion within the last 6 months, or reporting a history of 3 or more previous concussions

6.2.3. Standardized Balance Assessment with the Balance Error Scoring Scale (BESS)

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- 6.2.3.1. BESS is an easily performed measure of balance that has been validated as an effective means to grade postural stability and is a useful part of objective concussion assessment.
- 6.2.3.2. BESS may be administered similar to the SCAT 3 version by a qualified athletic trainer or other healthcare provider
- 6.3. Results of a student-athlete's baseline testing shall be kept on file in a secure location

7. Concussion Action Plan

- 7.1. When a student-athlete shows any signs, symptoms or behaviors consistent with a concussion, the athlete shall be removed from practice or competition and evaluated by an athletics healthcare provider with experience in the evaluation and management of concussion
 - 7.1.2. Athletics healthcare provider with training in the diagnosis, treatment and initial management of acute concussion must be "present" at all NCAA varsity competitions in the following contact/collision sports: basketball; football; pole vault; skiing; soccer. To be present means to be on site at the campus or arena of the competition.
 - 7.1.3. Athletics healthcare provider with training in the diagnosis, treatment and initial management of acute concussion must be "available" at all NCAA varsity practices in the following contact/collision sports: basketball; football; pole vault; skiing; soccer. 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. Further, the case can be discussed through such communication, and immediate arrangements can be made for the athlete to be evaluated.
- 7.2. The sideline evaluation will be done with the Sports Concussion Assessment Tool (SCAT 3); digital smart phone application, tablet application, or paper version
 - 7.2.1. The SCAT 3 is comprised of a symptom checklist, standard and sport specific orientation questions, the Standardized Assessment of Concussion (SAC), and an abbreviated form of the Balance Error Scoring Scale (BESS)
 - 7.2.2. Student-athlete will also be assessed for head, neck, and neurological pathologies.
- 7.3. A student-athlete diagnosed with a concussion shall be withheld from the competition or practice and will not return to activity or academic/classroom activity for the remainder of that day
- 7.4. The student-athlete should receive serial monitoring for deterioration. Student-athletes will be provided with written instructions upon dismissal from practice/game, preferably with a roommate, guardian, or someone that can follow the instructions provided (See Appendix B for a copy of discharge instructions).

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- 7.4.1. The athlete will report symptoms daily at the discretion of the health care provider (See Appendix C for a copy of symptom diary and checklist).
- 7.4.2. Athletes will be transported by EMS to the Hospital if any of the following signs and symptoms are present: Glasgow Coma Scale < 13, prolonged period of loss of consciousness (longer than 1 minute); focal neurological deficit; repetitive emesis; persistently diminished or worsening mental status or other neurological signs or symptoms; and potential spine injury.
- 7.5. Consultation with the team physician will occur within 24 hours of a student-athlete sustaining a suspected concussion. In cases where the student-athlete may be in an off-campus, non-local location, this consultation may occur by telephone between the Athletic Trainer and Physician.
- 7.6. Subsequent management of the student-athlete's concussion shall be under the discretion of the treating physician, but may include the following:
 - 7.6.1. Repeat ImPACT test when asymptomatic and/or as determined by physician when information is needed to determine proper care and progression.
 - 7.6.2. Clinical assessment of balance and symptoms, with comparison to baseline data
 - 7.6.3. Appropriate medication management of symptoms, where appropriate
 - 7.6.4. Provision of recommendations for adjustment of academic coursework (return to learn), including the possible need to be withheld from coursework obligations while still symptomatic (See Appendix D for list of possible accommodations required) will be made by the Team Physician. Appendix D will be provided by the Team Physician to the academic advisor/learning specialist of the student athlete. The academic advisor/learning specialist will then help make the needed accommodations. Typically if a student athlete cannot tolerate light cognitive activity, he or she should remain at home.
 - 7.6.5. Direction of return to play protocol, to be coordinated with the assistance of the Athletic Trainers (see Appendix F for return to play protocol)
 - 7.6.6. Referral to other Allied Health Professionals for treatment will be at the discretion of the team physician
 - 7.6.7. Any athlete with prolonged recovery will be referred back to the physician for further evaluation and care
 - 7.6.8. A multi-disciplinary team consisting of team physician, athletic trainer, psychologist/counselor, neuropsychologist, academic counselor, learning specialists, faculty athletic representative, and representative of the office of student services for disability services will be consulted, as appropriate, for care of prolonged or complex concussions

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- 7.7. Final authority for Return-to-Play shall reside with the team physician or the physician's designee.
- 7.8. The incident, evaluation, continued management, and clearance of the student-athlete with a concussion will be documented.

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APPENDIX A: Personnel Roles

- **Coach:**
 - Remove any student-athlete that shows any sign of concussion
 - Make sure that they are evaluated by the appropriate health care professional
 - Allow the student-athlete to return to play after receiving clearance from the appropriate health care professional
 - Take a safety first approach to practice and competition. Teach and enforce proper contact techniques to reduce head trauma. Reduce gratuitous contact during practice.
- **Certified Athletic Trainer:**
 - Remove any student-athlete that shows any sign of concussion
 - Perform the initial concussion evaluation and subsequent evaluations as physician desires
 - Supervise activities during the return to play protocol, including exertion tests
 - Make proper referral to physician, provide go home instructions to responsible care giver when athlete goes home
 - Allow the student-athlete to return to play after receiving clearance from the Physician
- **Physician:**
 - During Pre-Participation Exam, the physician will address questions on form concerning concussion history. Athletes sustaining a concussion within the last 6 months will receive any necessary follow up. Team physician will also determine participation clearance.
 - When present, remove any student-athlete that shows any sign of concussion
 - When present, perform the initial concussion evaluation and subsequent evaluations as needed
 - Make proper referral to specialists when needed
 - Direct the Certified Athletic Trainer in caring for the Student–Athlete
 - Determine when the student-athlete can return to play and return to learn
- **Physician Assistant:**
 - Fulfill the role of the team physician as directed by the team physician
- **Neuropsychologist:**

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- Interpret abnormal baseline ImPACT scores and administer any other additional tests, when referred to by attending physician
- When referred to, interpret post-injury ImPACT scores and provide recommendations for concussion management in consultation with the treating physician
- **Other Health Professionals:**
 - Consulted by Physician to aid in diagnosis and treatment of concussions

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APPENDIX B: Immediate Post Concussion Instructions

The following instructions are to be given to each athlete after sustaining a concussion, as identified in section 7.4

HEAD INJURY PRECAUTIONS

Our physicians do not feel that hospitalization is necessary at the present time. The following instructions should be observed for the first 24 hours:

1. Diet – drink only clear liquids for the first 8-12 hours and eat reduced amounts of foods thereafter for the remainder of the first 24 hours. Avoid alcohol, tobacco, and drug use as these will affect your symptoms and healing.
2. Pain Medication – do not take any pain medication except Tylenol. Adults should take Tylenol every 4 hours as needed.
3. Activity – activity should be limited for the first 24 hours, usually this means no work for adults and classroom activity for student-athletes. Avoid loud music, computer use, video games, watching TV and texting.

4. Observation – several times during the first 24 hours:

- a. Check to see that the pupils are equal. Both pupils may be large or small, but the right should be the same size as the left.
- b. Check the athlete to be sure that he/she is easily aroused; that is, responds to shaking or being spoken to, and when awakened, reacts normally.
- c. Check for and be aware of any significant changes. (See #5 below)

5. Significant changes

Conditions may change within the next 24 hours. Contact your athletic or go to the nearest Emergency Room if any of the following occur:

- a. Persistent or projectile vomiting
- b. Unequal pupil size (see 4a above)
- c. Difficulty in being aroused
- d. Clear or bloody drainage from the ear or nose
- e. Continuing or worsening headache
- f. Seizures
- g. Slurred speech
- h. Can't recognize people or places – increasing confusion
- i. Weakness or numbness in the arms or legs
- j. Unusual behavior change – increasing irritability
- k. Loss of consciousness

6. Improvement

The best indication that an athlete who has suffered a significant head injury is progressing satisfactorily is that he/she is alert and behaving normally.

Athletic Trainer Phone # _____

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University Hospital ER# 801-581-2291

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Appendix C: Symptom Diary and Checklist

Sufficient copies to be given for student-athlete to rate symptoms a minimum of daily.

Concussion Symptom Chart

Date/Time								
Headache								
Nausea								
Vomiting								
Balance Problems								
Dizziness								
Fatigue								
Trouble Falling Asleep								
Sleeping more than usual								
Sleeping less than usual								
Drowsiness								
Sensitivity to light								
Sensitivity to noise								
Irritability								
Sadness								
Nervousness								
Feeling more emotional								
Numbness or tingling								
Feeling slowed down								
Feeling mentally foggy								
Difficulty concentrating								
Difficulty remembering								
Visual Problems								
Total Symptom Score								

Rank symptoms 0 to 6, 0 being no symptom and 6 being severe

Do these symptoms worsen with physical activity? (Y/N) Worsen with mental activity? (Y/N)

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Appendix D: Return to School Recommendations

In the early stages of recovery after a concussion, increased cognitive demands, such as academic coursework, as well as physical demands may worsen symptoms and prolong recovery. Student-athletes will be re-evaluated by the team physician if symptoms worsen with academic and/or ADL challenges. Accordingly, a comprehensive concussion management plan will provide appropriate provisions for adjustment of academic coursework on a case by case basis.

The following provides a framework of possible recommendations that may be made by the managing physician (check all that apply):

- ☐ May return immediately to school full days
- ☐ No return to school. Return on (date) _____
- ☐ Return to school with supports as checked below. Review on (date) _____
- ☐ Shortened day. Recommend _____ hours per day until (date) _____
- ☐ Shortened classes (i.e. rest breaks during classes). Maximum class length: _____ minutes
- ☐ Allow extra time to complete coursework/assignments and tests
- ☐ Lessen homework load by ____%. Maximum length of nightly homework: _____ minutes
- ☐ No significant classroom or standardized testing at the time
- ☐ No more than one test per day
- ☐ Take rest breaks during the day as needed
- ☐ Referral to Learning Specialist through Academic Advisors
- ☐ Referral to Office of Student Services for disability services
- ☐ Referral to ADAAA office
 - Center for Disability Services
 - 200 S. Central Campus Dr. RM. 162
 - Salt Lake City, UT 84112
 - 801-581-5020
 - 801-581-5487 fax

Inform the teacher(s), Academic Advisors, and administrator(s) about your injury and symptoms. School personnel should be instructed to watch for (Appendix E is a sample letter):

- Increase problems with paying attention, concentrating, remembering, or learning new information
- Longer time needed to complete tasks or assignments
- Greater irritability, less able to cope with stress
- Symptoms worsen (e.g., headache, tiredness) when doing schoolwork

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Appendix E: Concussion Awareness Letter to Teacher/Administrator

The University of Utah Sports Medicine and Student Services/Academic Departments would like to inform you that _____ sustained a concussion during _____ on ____/____/____. He/she was evaluated by _____, MD, team physician. _____ will undergo additional concussion testing today. A concussion or mild traumatic brain injury can cause a variety of physical, cognitive, and emotional symptoms. Concussions range in significance from minor to major, but they all share one common factor — they temporarily interfere with the way your brain works. We would like to inform you that during the next few weeks this athlete may experience one or more of these signs and symptoms.

Headache	Nausea
Balance Problems	Dizziness
Diplopia - Double Vision	Confusion
Photophobia – Light Sensitivity	Difficulty Sleeping
Misophonia – Noise Sensitivity	Blurred Vision
Feeling Sluggish or Groggy	Memory Problems
Difficulty Concentrating	

As a department, we wanted to make you aware of this injury and the related symptoms that the student athlete may experience. Although the student is attending class, please be aware that the side effects of the concussion may adversely impact his/her academic performance. Any consideration you may provide academically during this time would be greatly appreciated. We will continue to monitor the progress of this athlete and anticipate a full recovery. Should you have any questions or require further information, please do not hesitate to contact us.

name, Credentials
title
University of Utah
Office: 801-58X-XXXX
Name@huntsman.utah.edu

Thank you in advance for your time and understanding with this circumstance.

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APPENDIX F: Return to Play Protocol

It is expected that athletes will start in stage 1 and remain in stage 1 until symptom free.

The patient may, under the direction of the physician and the guidance of the athletic trainer, progress to the next stage only when assessment battery has normalized, including symptom assessment, cognitive assessment with ImPact, and balance assessment with the BESS.

Utilizing this framework, in a best case scenario of a patient sustaining a concussion and being asymptomatic by the next day, will start in Stage 1 at post injury day 1 and progress through to stage 6, as long as they are asymptomatic. If they become symptomatic they will not progress from stage 1.

There may be circumstances, based on an individual's concussion severity, where the return to play protocol may take longer. Under all circumstances the progression through this protocol shall be overseen by the managing team physician.

Each student-athlete with a concussion will be personally evaluated by a physician in clinic at least one time during the process.

When the athlete has successfully passed through stage 5 and has previously been evaluated by the physician, a verbal clearance may be obtained by the Athletic Trainer from the attending team physician. Otherwise, a physician visit is required before such clearance to return to play will be granted.

Stage	Functional Exercise or Activity	Objective	Tests Administered before advancing to next stage
1. No structured physical or cognitive activity	Only basic activities of daily living (ADLs), including limited schoolwork, where indicated	Rest and recovery, avoidance of overexertion	Initial Post-injury test battery: -Symptom checklist -ImPact -BESS
2. Light Aerobic physical activity	Light exercise at 50-70% maximum heart rate (walking, biking)	Ensure tolerance of raising heart rate above rest	-Symptom checklist
3. Sport Specific exercise without head impact	Sport specific exercise at 70-100% estimated heart rate	Ensure tolerance of regular exercise	-Symptom checklist
4. Non-contact sport specific training drills with progressive resistance training	Non-contact sport specific drills Aerobic activity at 70-100% estimated maximum heart rate; resistance training. Will progress from moderate to full exertion based on being asymptomatic	Ensure tolerance of all regular activities short of physical contact	-Symptom Checklist
5. Full contact practice	Resume all drills and full contact	Ensure tolerance of physical contact	-Medical clearance by team physician
6. Return to Play	Regular practice and game	Ensure Tolerance of	-Educate to report any

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	competition	full activity	symptoms or change in behavior
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