



UNIVERSITY OF MINNESOTA - ATHLETIC MEDICINE CONCUSSION MANAGEMENT PLAN

The health and safety of our student-athletes is the first priority of the University of Minnesota. This document establishes (1) the educational procedures for student-athletes, coaches, sport administrators, the Director of Athletics, and medical staff regarding concussions, (2) the diagnosis and medical management plan for concussions, (3) the return to play and return to learn management plans, and (4) the management plan to reduce head trauma exposure.

PRE-SEASON EDUCATION

The University of Minnesota will make our Concussion Management Plan and other concussion education materials available on GopherSports.com.

Student-Athlete Education

- All student-athletes will be provided the NCAA Fact Sheet for Student-Athletes or other concussion education material and a copy of the concussion management plan annually.
- Each student-athlete will be required to sign an acknowledgement that they have received, read and understand this educational material including the causes, signs and symptoms, and possible consequences of concussion. This education also outlines their responsibility for reporting any suspected concussions or head injuries directly to the medical staff.
- The Head Athletic Trainer will ensure that each student-athlete has completed this education and the signed acknowledgement forms will be retained in the student-athlete's medical chart.

Staff Education

- All coaches, sport administrators, and the Director of Athletics will be provided the NCAA Fact Sheet for Coaches or other concussion education material and a copy of the concussion management plan annually.
- Each coach, sport administrator, and Director of Athletics will be required to sign an acknowledgement that they have received, read and understand this educational material including the causes, signs and symptoms, and possible consequences of concussion. This education also outlines their responsibility for reporting any suspected concussions or head injuries directly to the medical staff.
- The Head Athletic Trainers will ensure that each coach, sport administrator, and Director of Athletics has completed this education and will retain the signed acknowledgement forms.

Medical Staff Education

- All athletic trainers and team physicians will receive concussion education material and review the University of Minnesota's concussion management plan annually.
- All athletic trainers and team physicians will sign an acknowledgement that they understand the concussion management plan, their role within the plan, and that they have received education about concussions.

- The Head Athletic Trainer will ensure that each athletic trainer and team physician has completed this education and will retain the signed acknowledgement forms.
- Review and revision of the written management plan will be conducted annually to reflect best known and/or evidence based management practices.

PRE-PARTICIPATION ASSESSMENT

Pre-Participation Management Plan

- All student-athletes will undergo a pre-participation history and physical examination by a University of Minnesota Team Physician which includes brain injury and concussion history.
- All student-athletes will undergo pre-participation baseline concussion assessment testing – specifically computerized neuropsychological testing using ImPACT and the Sport Concussion Assessment Tool – 5th Edition (SCAT 5). These assessment tools include symptom evaluation, cognitive assessment and balance evaluation.
- Team physician judgment will determine pre-participation clearance and/or the need for additional consultation or testing based upon known individual concussion modifiers.
- New baseline concussion assessment will be considered at six months or beyond for any student-athlete with a documented concussion, especially those with complicated or multiple concussion history. This will be determined by the team physician.

RECOGNITION AND DIAGNOSIS OF CONCUSSION

Recognition and Diagnosis of Concussion Management Plan

- Medical staff (i.e. Certified Athletic Trainer, team physician or other medical physician designated by the University of Minnesota Athletic Medicine staff) with training in the diagnosis, treatment and initial management of an acute concussion must be present at all University of Minnesota competitions in the following contact/collision sports: basketball; football; ice hockey; pole vault; soccer; wrestling. To be present means to be on site at the location of the competition. Medical staff may be from either team, or may be independently contracted for the event.
- Medical staff with training in the diagnosis, treatment and initial management of an acute concussion must be available at all University of Minnesota practices in the following contact/collision sports: basketball; football; ice hockey; pole vault; soccer; wrestling. To be available means that, at a minimum, medical staff can be contacted at any time during the practice via direct communication means that result in immediate arrangements for the student-athlete to be evaluated.
- A student-athlete who shows any signs, symptoms or behaviors consistent with a concussion must be removed from practice or competition and evaluated by a medical staff member.
- If a concussion is confirmed, the student-athlete must be removed from practice or competition for the remainder of that calendar day.
- A clinical assessment of head injury including skull fracture and/or intracranial bleed as well as assessment for cervical spine trauma will be performed and implementation of emergency action plan, as warranted.
- If an athletic trainer or team physician is on site and the student-athlete is medically stable, the SCAT 5 should be used for the evaluation of the injured student-athlete.

- If there is no team physician or athletic trainer available and the student-athlete is showing any signs, symptoms or behaviors consistent with a concussion, the student-athlete should be removed from practice and the staff member should contact the athletic trainer / team physician to determine a plan for evaluation of the student-athlete.

POST-CONCUSSION MANAGEMENT

Post-Concussion Management Plan

- A student-athlete observed to have a prolonged loss of consciousness or worsening symptoms, especially worsening headache, nausea or vomiting, Glasgow Coma Scale < 13, increased confusion, garbled speech, lethargy or extreme sleepiness, trouble using their arms or legs, convulsions or seizure activity or potential spine injury, will trigger implementation of the emergency action plan including potential transport for further medical care.
- The student-athlete will be evaluated serially – including a symptom inventory and monitored for deterioration following injury.
- Physician evaluation of all concussed athletes, timing dependent on athletic trainer assessment & clinical judgment. The athletic trainer should contact the team physician to discuss follow up.
- Upon discharge from medical care, both oral and/or written instructions for home care will be given to the student-athlete and another responsible adult (e.g., parent, roommate, or teammate).
- The concussed student-athlete will be instructed to minimize potential cognitive stressors such as school work, video games, reading, texting, and watching television.
- ImPACT may be utilized for post-concussion evaluation prior to asymptomatic status as directed by the Team Physician.
- For student-athletes with prolonged concussion symptoms, team physician evaluation will consider additional diagnoses and best management options. Additional diagnoses may include, but are not limited to: post-concussion syndrome, sleep dysfunction, migraine or other headache disorder, mood disorder such as anxiety and depression, or ocular or vestibular dysfunction. Team physician judgment will determine the need for additional consultation, testing or treatment of diagnosed condition.
- Student-athletes who sustain a concussion outside of their sport will be managed for return to play/return to learn in the same manner as those sustained during sport activity.

RETURN TO PLAY

Return to Play Management Plan

- A student-athlete diagnosed with a concussion is required to be medically cleared by a physician (i.e., team physician or other medical physician designated by the University of Minnesota Athletic Medicine staff) before returning to practice or competition.
- Current evidence supports prescribed progressive sub-symptom threshold aerobic exercise for athletes, before becoming asymptomatic, as an early treatment modality that improves concussion recovery and is without known adverse effects. This treatment option will be considered for all concussed student-athletes. It will be prescribed by a team physician, as deemed appropriate for each specific clinical scenario, and monitored by an ATC.
- After symptoms return to baseline, follow up ImPACT will be completed and results reviewed by team physician.
- Rate of return to play progression shall be determined and supervised by a team physician and an athletic trainer.

- Return to play progression involves a gradual, step-wise increase in physical demand, sport specific activities and the risk for contact.
 - a. Light aerobic exercise without resistance training (e.g. exercise bike). HR 100-140/RPE 3-4
 - b. Sport specific activity without head impact (e.g. lifting, agility drills, skating).
HR 120-160/RPE 4-6
 - c. Non-contact practice or equivalent with progressive resistance training.
HR 140-180/RPE 6-8
 - d. Unrestricted training including contact drills. HR 160-200/RPE 8-10
 - e. Return to game/competition activity.

If symptoms return with activity, the progression should be halted and restarted at the preceding symptom-free step.

RPE: Rate of Perceived Exertion=subjective measurement of exercise intensity on a 0-10 scale.

RETURN TO LEARN

Return to Learn Management Plan

- Following a diagnosis of concussion, cognitive rest will be immediately prescribed. There should be no classroom activity on the same day as a concussion injury.
- Based on the concussion evaluation, the medical staff will recommend a “level” of instructional modification and academic accommodation to the Lindahl Academic Center (LAC) coordinator and the academic counselor specific to the student-athlete’s sport. These academic staff will then assist the student-athlete in navigating the return to academic and team cognitive activities and with modification of schedule and academic accommodations as appropriate.
- The “level” recommendation and gradual return to cognitive (classroom/studying) activity is based on the return of concussion symptoms following cognitive exposure and involves a stepwise increase in cognitive demand.

<input type="checkbox"/>	Level 1	No Academic Activities.
<input type="checkbox"/>	Level 2	Limited Academic Activities-Limited Class Attendance. LAC counselor will advise which classes student-athlete may attend. Maximum Accommodations may include: Limited assignments; no exams/quizzes; frequent breaks during class; scribe/classmate for note taking.
<input type="checkbox"/>	Level 3	Moderate Academic Activities-Class Attendance to Tolerance. LAC counselor will advise which classes student-athlete may attend. Moderate Accommodations, may include: Breaks as needed during class; extended deadlines for assignments; extended time for exams/quizzes (or verbal assessment); scribe/classmate for note taking.
<input type="checkbox"/>	Level 4	Maximum Academic Activities-Full Class Attendance. Minimal Accommodations; Increase return to normal class workload and begin working on missed work/assignments.
<input type="checkbox"/>	Level 5	Full Academic Activities. No Accommodations.

- Student-athletes who are currently enrolled in any physical education class requiring activity participation will be withheld from activity until resolution of the injury, or as otherwise dictated by the managing Team Physician.
- Student-athletes with concussion symptoms lasting greater than two weeks should be re-evaluated by a team physician as appropriate.
- Student-athletes with symptoms that significantly worsen with academic challenges should be re-evaluated by a team physician.
- For complex cases of prolonged return-to-learn, the level of academic adjustment needed will be decided by a multi-disciplinary team that may include, but is not limited to: the team physician, athletic trainer, sports/neuro-psychologists, faculty athletics representatives, academic counseling staff and learning specialists, , course instructors, administrators, disability services, and individual sport coaches
- A student-athlete with persistent or prolonged concussion symptoms whose academic challenges cannot be managed through schedule modification/academic accommodations will be referred to the Disability Resource Center on campus for consideration of additional academic accommodations consistent with the ADAAA.

Documentation of Concussion Management

- Team physicians will document their clinical care for each concussion in EPIC.
- Athletic trainers will document their clinical care and details about return to play progression for each concussion in the electronic medical record system.
- Both medical professionals will document that the University of Minnesota Concussion Management Plan has been followed.

REDUCING EXPOSURE TO HEAD TRAUMA

Reducing Head Trauma Exposure Management Plan

- The University of Minnesota will take a “safety first” approach to all of our sports.
- The University of Minnesota will provide education to coaches and student-athletes regarding safe play, proper technique and taking the head out of contact.
- The University of Minnesota will adhere to the NCAA Inter-Association Consensus: Year Round Football Practice Contact Guidelines.
- The University of Minnesota will adhere to the NCAA Inter-Association Consensus: Independent Medical Care Guidelines.
- The University of Minnesota will aim to reduce gratuitous contact during practices in all sports.

MEDICAL POLICY REVIEW COMMITTEE:

Jeff Winslow, ATC, Head Athletic Trainer	Brad Nelson, M.D. Medical Director
Suzanne Hecht, M.D. Sports Medicine Team Physician	Dave Olson, M.D. Sports Medicine Team Physician
DATE EFFECTIVE: August 1, 2010	
REVISION DATE: April 24, 2019	
DATE REVIEWED: April 24, 2019	
APPROVED BY: Brad Nelson, MD Medical Director	

KEY LITERATURE REVIEWED:

Leddy JJ, et al: Early Subthreshold Aerobic Exercise for Sport-Related Concussion: A Randomized Clinical Trial. JAMA Pediatr; 2019, Feb 4.

NCAA Sports Medicine Handbook, Guideline 2 I Sport-Related Concussion. July 2014.

NCAA Concussion: Return-to-Learn Guidelines: <http://www.ncaa.org/health-and-safety/medicalconditions/concussion-return-learn-guidelines>

National Athletic Trainers' Association Position Statement: Management of Sport Concussion. *Journal of Athletic Training*, 2014; 49(2): 245-265.

Inter-Association Guidelines from the NCAA and College Athletic Trainers' Society. Concussion Guidelines: Diagnosis and Management of Sport-Related Concussion Guidelines. Available at: <http://www.ncaa.org/healthand-safety/concussion-guidelines>. Accessed July 8, 2014.

Consensus statement on Concussion in Sport-4th International Conference on Concussion in Sport held in Zurich, 2012. *BR J Sports Med* 2013; 47: 250-258.

American Medical Society for Sports Medicine Position Statement: Concussion in Sport. *Clin J Sport Med* 2013; 23(1): 1-18.