



**Policy Title:** Managing Concussions in Athletes  
**AAAHC Standard:** Quality of Care  
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## **GOALS OF THE POLICY**

- Standardized approach to head injury and possible concussive injury to protect the health and welfare of student athletes.
- Comprehensive baseline and post-injury evaluations for head injuries and concussion in the student athlete.
- Individualized return to academics and return to sport for athletes with concussive injury.
- Provide educational information to athletes, coaches, administrators, healthcare providers and others involved in the health and wellbeing of athletes regarding concussion.

## **POLICY**

Concussion is an important injury in the student athlete. Princeton University Athletic Medicine (PUAM) has a comprehensive program regarding head injury and possible concussive injury that includes education, a baseline assessment, a post-injury evaluation, and an individualized return to academics and sport management program. This is referred to as the PUAM Concussion Management Policy.

## **PROCEDURES**

### **1. Administrative Issues**

- a. Injury in Sport Emergency Plan for all venues including a Concussion Plan
- b. Education of Athletic Trainers (AT's), Team Physicians, Coaches and Administrators regarding EAP & the PUAM Concussion Management Policy. This includes allowing an opportunity to discuss this information.
- c. Provide concussion education for student athletes, coaches, administrators, AT's, and team physicians as well as others involved in health and safety decision-making. This includes recognizing common signs & symptoms, and the importance of prompt reporting of symptoms, properly fitting equipment, and avoiding high-risk sport activities (e.g. leading with the head). This education includes allowing an opportunity to discuss this information.
- d. Pre-participation Physical Examinations performed for all varsity athletes and club rugby athletes.
- e. Acknowledgement of "Student Athlete (SA) Agreement" during all First year/Initial and Returner Physical Examinations that includes the following language: "By checking the box below, I acknowledge that I understand that there are certain risks involved in

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participating in Athletics at Princeton University, including those associated with head injuries and concussions. Although there are some contact and collision sports that inherently have a higher risk of head injury and concussion than others, these are important injuries for all student-athletes. I agree to report all signs and symptoms of my injuries to the Princeton University Athletic Medicine/Athletic Training staff immediately. Additionally, I will help protect my teammates by reporting their signs and symptoms to the Athletic Medicine/Athletic Training staff. I understand that each head injury is different, and that each injury will be treated individually, with each return to play decision made on an individual basis. By signing this, I agree to follow the direction of treatment and care designated by the Princeton University Athletic Medicine Staff. I understand that I must be cleared by a Princeton University Athletic Medicine physician before returning to competition.”

- f. Acknowledgement of Coaching & Support Staff (coaches, administrators, athletic trainers, team physicians) Agreement regarding receiving education regarding the signs and symptoms of concussion, the importance of early reporting, and the PUAM Concussion Management Policy.
- g. AT's on site/available for all at risk practices & games, physician on site/available for at risk home varsity sport events.
- h. Documentation of baseline testing (most current version of the Sport Concussion Assessment Tool (SCAT)), initial injury evaluation (SCAT & other) as well as follow up SCAT symptom checklist and documentation of academic issues. Documentation (AT & Team Physician) of initial & subsequent evaluations, change in status regarding activities (return to play / academic progress) and final clearance to return to play. Documentation of interpretation of any post-injury neuropsychological testing by our outside consulting neuropsychologist, as well as any other consultant notes.
- i. PUAM Concussion Education Information Sheet (Attachment 1) given to SA that have sustained a concussive injury.
- j. Understand importance of education, technique training, early recognition and reporting, following league and NCAA rules and promoting fair play in potential prevention of concussion.

**2. PUAM Pre-Participation Exam: 1st year SA's**

- a. Includes questions regarding possible “modifiers”: prior history of concussion or brain injury, neurologic disorder, attention deficit hyperactivity disorder (ADHD) or learning disabilities, headache or migraines, depression, anxiety or other mental health disorder, or seizure disorder.
- b. Baseline SCAT (includes symptom checklist, brief cognitive evaluation and balance assessment) performed for all varsity athletes and club rugby and computerized neuropsychological (NP) testing (e.g. “Immediate Post-Concussion Assessment and Cognitive Testing” (ImpACT)) performed for all at risk sport athletes (Football, Field Hockey, Wrestling, Baseball, and Softball, as well as Men's & Women's Soccer, Basketball, Lacrosse, Ice Hockey, Water Polo, Pole Vaulting, and Club Rugby).
- c. If any athlete has a significant history of prior concussion(s), recent concussion, or significant other “modifiers”, the team physician may request that NP testing include computerized neuropsychological testing (e.g. ImpACT) as well as additional paper & pencil (P & P) tests, and may request additional consultation and/or testing.

**3. Sideline Evaluation:**

- a. When an athlete exhibits signs or has symptoms of suspected concussion after a blow to the head or body, they should be removed from play and not allowed to return to play until evaluated by a licensed health care provider.
- b. A SA with worsening symptoms, especially worsening headache, nausea or vomiting, increased confusion, garbled speech, lethargy or extreme sleepiness, trouble using their arms or legs, convulsions or seizure activity should be transported emergently by public safety / ambulance to the emergency room. Any SA with neck pain should be treated as if a cervical spine injury is present, and emergency procedures (cervical spine motion restriction, emergency room transfer) considered or initiated.
- c. For SA transported to the emergency room, whether by public safety or ambulance, contact the inpatient unit of UHS (609-258-3139 or 609-258-3141) to provide them with this information.
- d. If no AT or team physician is available, and the athlete has minimal symptoms, contact the AT / team physician to determine a plan for evaluation of the athlete. If you are unable to contact the PUAM staff, contact UHS at 609-258-3139 or 609-258-3141. Tell the inpatient/front desk staff that this is a student athlete. Public safety should be called for transportation.
- e. For away contests when an AT is not available, the host institutions medical staff should be utilized. Contact the AT / Team Physician to let them know that the host institutions medical staff has been consulted.
- f. If an AT is on site and the SA is stable medically, SCAT (or similar instrument that includes Glasgow Coma Scale, Maddock's questions, cervical spine and brief neurological exam, symptom checklist, balance assessments) should be used for the evaluation of the injured athlete.
- g. If an AT is on site and the assessment is concussion, the athlete cannot return to play the same day.
- h. If the athlete is evaluated by the team physician and/or other clinician (including host institutions medical staff) and the diagnosis is concussion, the athlete cannot return to play the same day.
- i. Provide SA with PUAM Concussion Education Information.

**4. Management:**

- a. **Physician evaluation of all athletes with suspected concussion**, timing dependent on AT assessment & clinical judgment. The AT should contact the team physician to discuss follow up care.
- b. **The team physician will:**
  - i. Determine if additional testing / consultation as indicated, and consider additional diagnoses including but not limited to fatigue and/or sleep disorder, migraine or other headache disorders, mental health symptoms and disorders, ocular dysfunction, vestibular dysfunction, cognitive impairment, or autonomic dysfunction,
  - ii. Educate SA regarding importance of reporting all / any symptoms
  - iii. Review PUAM Concussion Education Information.
  - iv. Determine if any modifications to school or other demands necessary (e.g. refer to Dean, Director of Studies, Office of Disabilities) and communicate with others, following privacy rules/regulations (e.g. coaches, parents, Deans).

**c. The student athlete will:**

- i. Contact his/her Dean, Director of Undergraduate Studies and the Academic-Athletic Advisor (per the PUAM Concussion Education Information) regarding their diagnosis, and providing permission to discuss the diagnosis with the Team Physician
- ii. Report to the AT and team physician, as instructed for follow up visits.
- iii. Report symptoms or signs and any academic concerns to the AT and Team Physicians.

**5. Follow up Care;**

- a. Daily follow up with AT or Team Physician, as able, using “SCAT Follow Up” form including symptom checklist, questions regarding difficulties with class and attendance at class, and documentation of the level of activity (no activity, cardiovascular (CV) activities, limited / non-contact activity and full / contact activity).
- b. Post Injury Hybrid NP Testing (e.g. ImPACT and paper/pencil tests) performed ideally 24-48 hours post injury or as determined by Team Physician.
- c. Post-injury NP testing sent in encrypted format to outside consulting neuropsychologist along with clinical information by Team Physician. NP testing interpreted by outside consulting neuropsychologist.
- d. Return to limited academic and physical activities determined by the Team Physician, consistent with the most recent Concussion in Sport Guidelines (McCrorry et al BJSM 2017) and American Medical Society for Sports Medicine Guidelines (Harmon et al BJSM 2019).
- e. Follow up with Team Physician once athlete is symptom free as well as when ready to return to full play, or weekly, whichever comes first. If not seen by Team Physician at these time points, the plan of progression must be discussed between the AT and Team Physician.

**6. Return to Academics**

- a. **Individualized decision;** collaboration between Team Physician, Dean, Director of Studies, the Assistant Dean of the College and the Office of Disabilities as necessary.
- b. SA Student will reach out to the Assistant Dean of the College as well as their Dean and /or Director of Studies to let them know that they were diagnosed with a concussion, copying the Team Physician to enhance communication regarding recovery.
- c. During check ins with AT and Team Physician, continued monitoring of any symptoms, including their ability to attend class, their difficulties with performing homework should be addressed and monitored.
- d. Modification of class load as necessary, discussed between Team Physician and academic team, with input from others as necessary. Short term adjustments and extensions, as well as longer term adjustments and/or consultation with the Office of Disabilities as necessary.
- e. Gradual increase in academic load until back into full academic activities. Return to learn and return to sport will often occur in parallel, with progressive cognitive and physical demands. Full return to academics should occur prior to full return to sport.

**7. Return to Sport Decisions;**

- a. **Individualized decision; made by the Team Physician.** Review of symptoms, neurocognitive and balance testing, and consultation from the athlete, AT, consulting neuropsychologist and additional outside consultation as appropriate.
- b. **Time athlete held out of activity, rate of return to academics and sport progression, also individualized, with decision made by Team Physician**
- c. Modifiers to consider;
  - i. Specifics of current injury (e.g. symptom burden, nature and duration, as well as results of post-injury neurocognitive / balance testing / other clinical exam findings)
  - ii. Age
  - iii. Prior history of concussion (#, specifics of prior injurie(s), severity of prior injurie(s), recency)
  - iv. Other possible “modifiers” (e.g. history of ADHD or Learning disabilities, Headaches or Migraine, Depression, Anxiety or other mental health disorder, or Seizure disorder)
  - v. Other (e.g. emotional readiness, academic demand / calendar, emotional disorders (e.g. depression or anxiety), parental concern)
- d. **Athlete should have an initial period (approximately 24-48 hours) of both relative physical rest and cognitive rest before beginning the return to sport progression.**
- e. **After the initial period of rest, an athlete can return to daily activities that do not provoke or exacerbate symptoms.** There may be situations where controlled cardiovascular (CV) exertion that does not exacerbate symptoms can be considered as part of treatment in non-acute settings. These exceptions are decided on by the Team Physician, and are separate from the Return to Sport progression outlined below. An athlete should be symptom free / back to baseline level of symptoms prior to starting the Return to Sport progression. An athlete with exacerbation of concussion signs / symptoms at rest or exertion should not continue to participate and should inform their AT / Team Physician.
- f. Gradual progression in activity; step-wise with gradual increments in physical exertion and risk of contact, consistent with most recent Concussion in Sport Guidelines (McCroory et al, 2017)
  - i. Symptom limited activity (daily activities that do not provoke symptoms)
  - ii. Light aerobic exercise / CV challenge (15 – 20 minutes) intended to increase heart rate and break a sweat
  - iii. Unlimited cardiovascular activity, sport-specific CV activities.
  - iv. Non-contact training drills (no contact activities). May start progressive resistance training.
  - v. Full-contact practice (participate in normal practice without restrictions)
  - vi. Return to sport / full game play
- g. **Rate of progression and final clearance is determined by the Team Physician**
  - i. No return to contact until neurocognitive, balance and other clinical testing (including hybrid NP testing) considered normal and/or back to baseline function and sport-specific progression is completed without recurrence of symptoms.
  - ii. Repeat full SCAT once cleared to return to full contact activity.
  - iii. If NP testing interpreted as abnormal, repeat NP testing, with at least 48 hours between repeat testing unless otherwise indicated.

## 8. Clearance & Final Follow Up

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- a. **Final clearance decision made by PUAM Team Physician.** Additional consultation and/or testing may be indicated and will be determined by the Team Physician.
- b. SA Education regarding importance of reporting all symptoms as well as increased risk for subsequent concussion.
- c. Repeat SCAT and NP testing (computerized and Paper & Pencil testing) for returning student athlete prior to following year to establish a new “baseline”.

**ATTACHMENTS:**

- Concussion Education Information
- SCAT 5
- NCAA Coaches and Student Athlete Education Sheets.

**REFERENCES:**

- Harmon KG, Clugston JR, Dec K et al: American Medical Society for Sports Medicine position statement on concussion in sport. *Br J Sports Med* 2019 53;213-225.
- McCrory P, Meeuwisse W, Dvorak J et al: Consensus Statement on concussion in sport - the 5<sup>th</sup> international conference on concussion in sport held in Berlin, October 2016. *Br J Sports Med* 2017;51:838-847.
- Sport concussion assessment tool – 5<sup>th</sup> edition. *Br J Sports Med* 2017;51:851-858.