

NORTH PARK UNIVERSITY
Department of Athletics – Athletic Training Services
Policy on Concussion Management
(Updated May 2018)

Introduction

The following document outlines the policies and procedures used to assist the North Park University sports medicine staff in managing concussions, return-to-learning and safe return-to-play (RTP) for student-athletes. To provide the best possible care for each scenario a multifaceted approach will always be used, using several methods of assessment of injury, progress and recovery. Although this protocol stands as a guide for the medical staff, all cases are considered separate, unique situations and will be managed according to individual circumstance, attempting to always see the “whole picture” with the ultimate goal always being to promote long-term health. Therefore, the medical staff has the ability to modify or deviate from the outlined policies.

This document will be used for the following purposes:

- A) Ensuring the proper diagnosis and management of concussions
- B) Preventing second-impact syndrome, which occurs when a second impact is sustained while an individual is still symptomatic from a previous concussion, which may cause diffuse cerebral swelling, catastrophic deterioration, and possibly death
- C) Monitoring student-athletes’ progress post-concussion to decrease, and hopefully eliminate, the risk of prolonged recovery and/or long-term changes in neurocognitive functioning

Concussion Definition and Characteristics

According to the 5th International Conference on Concussion in Sport (Berlin, 2016) consensus statement, a sport related concussion (SRC) is defined as “a traumatic brain injury (TBI) induced by biomechanical forces”. Furthermore, the consensus statement identifies several common clinical features utilized in clinically defining the nature of a concussive head injury:

1. SRC may be caused either by a direct blow to the head, face, neck, or elsewhere on the body via an ‘impulsive’ force transmitted to the head.
2. SRC typically results in the rapid onset of short-lived impairment of neurologic function that resolves spontaneously. However, in some cases, signs and symptoms may evolve over a number of minutes to hours
3. SRC may result in neuropathological changes, but the acute clinical signs and symptoms largely reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies.
4. SRC results in a range of clinical signs and symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged

No two concussions are the same, even for a single student-athlete. As a result, at the time of injury, it is impossible to predict the duration and severity of symptoms that a student-athlete will experience. For this reason, it has been recommended that the severity of a concussion should not be graded until all symptoms have resolved.

When the North Park athletic trainers and physicians are evaluating a student-athlete post-concussion, or during a preparticipation exam, the following modifying factors must be considered:

- a) Symptoms: number, duration, severity
- b) Prolonged loss of consciousness, moderate-severe amnesia
- c) Concussive convulsions
- d) Frequency, timing of concussion
- e) Decreasing threshold for concussion
- f) Age, child and adolescence
- g) ADHD, migraine history, depression, learning disability, sleep disorders
- h) Medications taken
- i) Sport, or behavior in sport

Procedure - Prior to Competition

- a) During the first team meeting of each academic year, prior to any participation, the following teams, including coaching staffs, will be educated on the signs, symptoms and risks associated with concussions via an oral and visual presentation supplemented by NCAA educational handouts and a conference (CCIW) Injury Awareness and Acknowledgment form (signed by student-athletes and coaches), stating their acceptance of responsibility to report concussion-like symptoms to the North Park University athletics medical staff.
 - 1) Football, Men's and Women's Soccer, Men's and Women's Volleyball, Men's and Women's Basketball, Track & Field (long jump, pole vault), Baseball, Softball
- b) These sports/student-athletes will also complete a computerized neurocognitive (ImPACT, Inc.) baseline test their first year of participation, prior to any participation in sport
 - 1) Students with a history of concussion and/or other modifying factors may also be administered a SCAT5 Baseline, if deemed necessary by North Park team physicians

Procedure – At Time of Injury

- a) Signs and symptoms of concussion range in domains – clinical symptoms (i.e. headache), physical signs (i.e. pupil abnormalities), cognitive impairment (i.e. slowed reaction time), neurobehavioral features (i.e. irritability), balance impairment (i.e. gait unsteadiness) and sleep/wake disturbance (i.e. more or less sleep than usual). If any one or more of these signs and/or symptoms are present a concussion is to be suspected by the North Park medical and coaching staff and an evaluation must be performed by an athletic trainer or team physician trained in concussion management. Until this occurs, the student-athlete shall be removed from all competition. Post-evaluation, if concussion is suspected, under no circumstances may the athlete return to play that day.

1. All evaluations will begin with a survey for serious injuries such as cervical spine trauma, skull fracture or intracranial bleed – if any exist, immediate referral to emergency department is necessary
 2. Other factors that will result in immediate referral to emergency department include 1) prolonged loss of consciousness (LOC) >1 minute, 2) significant alteration, or degradation, of orientation, 3) a consistent increase in symptoms over time
- b) The athletic trainer or team physicians' evaluation of concussion should be guided by the SCAT5 document. During competition a faster tool may be used in determining need for removal from play, at which time the healthcare provider will utilize the Standardized Assessment of Concussion (SAC), combined with an abbreviated symptom evaluation and motor control assessment. This is not a replacement for a thorough evaluation, only a "remove from play" assessment. Until the medical staff and student-athlete part ways, at no time should the patient be left alone without supervision. Serial monitoring of signs, symptoms and vitals will be performed until the athletic trainer or team physician parts ways with the athlete.
- c) If an athlete is diagnosed with a concussion or a concussion is suspected, and immediate referral is not necessary, the athletic trainer and/or team physician will go over the Concussion Take Home Instructions document with the patient and a friend or family member that will aid them in returning home. This review will include cardinal "to do" and "not to do" instructions, as well as a specific follow-up time the next day and signs and symptoms that call for immediate referral to the emergency department.
- d) Based on the preseason coaching staff's education on training, a coaching staff member will automatically remove an athlete from participation if ANY concussion signs and/or symptoms or present. The coach should refer the athlete to a healthcare professional trained in concussion evaluation immediately, while also notifying the appropriate North Park athletic trainer of the incident.

Procedure – Management Post-Diagnosis

- a) Each day following a concussion diagnosis the student-athlete will complete the North Park Symptom Evaluation Form as directed by the athletic trainer to monitor symptoms and recovery in an objective way.
- b) Patients will continue to be reminded to abstain from doing any activity that causes symptoms to increase (physical activity, light/auditory triggers, computers/phones/TV, reading, etc.).
- c) If academic work appears to be a trigger of signs/symptoms, the student-athlete should see a team physician immediately and obtain a signed North Park Concussion Academic Accommodations Form, which can be delivered to the academic services department and be distributed to all professors alerting them of their official concussion diagnosis, calling for both physical and cognitive rest. Part two of the Academic Accommodation Form is available for the team physician or athletic trainer to identify which academic accommodations may be appropriate for a specific student-athlete with a concussion, case by case. These accommodations are for one week – if more accommodations are necessary after one week the student-athlete must follow-up with the physician for another signed form. It is important for the athletic trainer to be an intermediary between the student-athletes instructor(s) and the medical staff, as necessary.

- d) If the athlete is experiencing symptoms greater than 24hrs after the injury, the team physician will be consulted.
- e) The ImPACT test and/or SCAT5 form are primarily used once the student-athlete is asymptomatic to confirm that they are back to a baseline state. If a student-athlete remains symptomatic for 7 or more days, an ImPACT and/or SCAT5 may be used to re-evaluate their condition every 7 days.
 - 1. Neuropsychological tests will not be administered on consecutive days to limit learning curves.
 - 2. Once the athlete is symptom free for 24 hours and all recommended tests are within normal limits (WNL), the graduated return-to-sport strategy may begin.
- f) North Park medical staff will closely monitor student-athletes with concussions for signs of depression, anxiety or other overall neurobehavioral changes. At the discretion of the team physician, the student-athlete may be referred to North Park Counseling Services.
- g) If a North Park student-athlete has suffered multiple concussions/head injuries over time, or in a short span of time, the athletic trainer/team physician will discuss the risks of continuing to participate in specific sports in regard to long-term health and longevity

Procedure – Graduated Return-to-Sport Strategy

This protocol should not be initiated until the athlete is asymptomatic for 24 hours (according to North Park Concussion Symptom Evaluation form) and neuropsychological tests (ImPACT, SCAT3) suggest the student-athlete has returned to pre-injury baseline levels. Progression to the next step on the following day is contingent on the athlete remaining symptom-free. If signs or symptoms appear during a functional test, the test will be stopped immediately and the student-athlete monitored until all signs or symptoms resolve. No further functional testing should be performed that day.

In the case that symptoms appear during a functional test and those signs and symptoms cease <30 minutes post-activity, that same step may be attempted again 24 hours later. If symptoms persist >30 minutes post-activity, the student-athlete must go back at least one step in the graduated return to sport protocol when attempting activity again 24 hours after symptoms clear. If symptoms do not resolve, the physician should be consulted and appropriate medical attention should be provided. After each phase of functional testing, the presence of post-concussive symptoms should be assessed and documented using the North Park Concussion Symptom Evaluation form.

Graduated return-to-sport strategy (must be 24 hours between steps)

Step	Goal of each step
<u>Stage 1</u> : Symptom limited activity. Only activities that do not provoke symptoms.	Gradual reintroduction of work/school activities
<u>Stage 2</u> : Light aerobic exercise. Walking or stationary cycling as slow to medium pace, no resistance.	Increase HR, RR, BP
<u>Stage 3</u> : Sport-specific exercise. Running or skating drills, no head impact activities	Add movement to Increase HR, RR, BP
<u>Stage 4</u> : Non-contact training drills. Harder training drills. May begin lifting/resistance training.	Exercise, coordination, and cognitive load
<u>Stage 5</u> : Full-contact practice. Following medical clearance, participate in normal training activities.	Restore confidence/assess functional skills by coaching staff
<u>Phase 6</u> : Return to play.	Normal game play

This is a recommended guide for the medical staff to use to progress student-athletes in a graded manner to full play after they are symptom free for at least 24 hours, but modifying factors or clinical judgment may call for delay of this progression. Furthermore, the North Park University athletic training staff and team physicians will determine when an athlete is cleared for full participation. If the athlete chooses to be cleared by another physician (MD or DO), the medical staff reserves the right to continue to withhold the athlete from participation, while consulting with the treating physician and receiving appropriate notes/paperwork releasing the athlete to participate, if necessary.

REFERENCES:

Consensus statement on concussion in sport: the 5th international conference on concussion in sport, Berlin 2016

National Athletic Trainer's Association Position Statement: Management of Sport Concussion, Journal of Athletic Training, 2014

NCAA Sports Medicine Handbook, 2014-15