

3341-8-1 Concussion Management Policy.

Applicability	Intercollegiate Athletics
Responsible Unit	Intercollegiate Athletics/Director of Athletics
Policy Administrator	Director of Athletics

(A) Policy Purpose

To set out the policy for identifying and managing concussions of student athletes.

(B) Policy

Concussion in sport has evolved from a minor local concern to a significant worldwide focus. Concussion definitions and management strategies have changed several times over the last ten years. While Bowling Green State University recognizes this, we also recognize the need to establish a concussion management policy based on the most up-to-date information available.

At the time of the development of this policy, Bowling Green State University believes the Consensus Statement developed in Zurich in 2008 and published in 2009 to be the most up-to-date information available with the broadest scope. The document released is widely considered to be evidence-based, objective, and directly applicable to collegiate sports medicine personnel responsible for caring for a concussed athlete.

On April 29, 2010 the NCAA released a memorandum regarding “Best Practices for Concussion Management Plans for all NCAA Institutions”. The recommendations have been implemented within the Bowling Green State University’s Concussion management Policy as well as included in our Sports Medicine Policy and Procedures Manual.

It is estimated that approximately 1.4 million traumatic brain injuries occur each year in the United States. Most of these injuries are mild and occur most commonly from motor vehicle accidents, falls, occupational

injuries, recreational injuries and finally assaults. The most commonly affected athletes are those who participate in American football, Hockey and Soccer. In one study, as many as 10 percent of collegiate football players sustain a concussion each season .

Bowling Green State University recognizes the potential sources of concussion for our athletes as being broader than that from participation of sport alone. In many cases, therefore, the acute management of the concussed athlete may occur outside the guidance of this document, however, the further management and return to play decisions for an athlete concussed outside of his or her participation in sport will continue to be guided by this policy.

In order to improve the detection of even minor abnormalities in cognitive and physical symptoms post-concussion, Bowling Green State University believes baseline assessment for all student athletes using the SCAT 2 form to be an important objective.

(C) Definition of Concussion

Concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces. Several common features that incorporate clinical, pathologic, and biomechanical injury constructs that may be utilized in defining the nature of a concussive head injury include:

- (1) Concussion may be caused by a direct blow to the head, face, neck, or elsewhere on the body with an “impulsive” force transmitted to the head.
- (2) Concussion typically results in the rapid onset of short-lived impairment of neurologic function that resolves spontaneously.
- (3) Concussion may result in neuropathologic changes, but the acute clinical symptoms largely reflect a functional disturbance rather than a structural injury.
- (4) Concussion results in a graded set of clinical symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course; however, it is important to note that in a small percentage of cases, post-concussive symptoms may be prolonged.

- (5) No abnormality on standard structural neuroimaging studies is seen in concussion.

(D) Signs and Symptoms of an Acute Concussion

All Bowling Green State University Sports Medicine personnel including volunteer personnel will use the SCAT2 form/questionnaire to help assess the injured athlete suspected of being concussed. Clinical judgment should err on the conservative side in the event the athlete performs well on the SCAT2 questionnaire yet is still believed to have suffered a concussion.

A diagnosis of concussion can be assumed if one or more of the following clinical domains are adversely affected:

- (1) Symptoms: somatic (eg, headache), cognitive (eg, feeling ‘‘like in a fog’’) and/or emotional symptoms (eg, lability),
- (2) Physical signs (eg, loss of consciousness, amnesia), (c) Behavioral changes (eg, irritability),
- (3) Cognitive impairment (eg, slowed reaction times),
- (4) Sleep disturbance (eg, drowsiness).

If any one or more of these components is present, a concussion should be suspected and the appropriate management strategy instituted.

(E) On-Field or Sideline Evaluation of Acute Concussion

The on-field or sideline evaluation of an athlete suspected of concussion will be accomplished in the appropriate amount of time needed to ensure the health and safety of the athlete. Consideration for the pace of the sporting event is secondary and should not be considered until the athlete is determined safe to be moved to another location for further evaluation or for transportation to emergency facilities.

In the event the athlete is already outside the field of play, clinical judgment should guide the sports medicine personnel regarding the location for further assessment (eg, sideline, courtside, or locker room).

When a player shows ANY features of a concussion

- (1) The player should be medically evaluated onsite using standard emergency management principles, and particular attention should be given to excluding a cervical spine injury.
- (2) The appropriate disposition of the player must be determined by the treating health care provider in a timely manner. If no health care provider is available, the player should be safely removed from practice or play and urgent referral to a physician arranged. This may require activation of emergency response personnel.
- (3) Symptoms that indicate the potential need for emergent disposition to local hospital setting for evaluation include but are not limited to: prolonged disturbance of consciousness, focal neurologic deficits and/or worsening of concussive symptoms.
- (4) Once the first aid issues are addressed, then an assessment of the concussive injury should be made using the SCAT2.
- (5) The player should not be left alone following the injury, and serial monitoring for deterioration is essential over the initial few hours following injury.
- (6) A player with diagnosed concussion should not be allowed to return to play on the day of injury.

(F) Post-Acute Concussion Management

The cornerstone of concussion management is physical and cognitive rest until symptoms resolve and then a graded program of exertion prior to medical clearance and RTP. The recovery and outcome of this injury may be modified by a number of factors that may require more sophisticated management strategies.

It is understood that the majority of patients will recover spontaneously over several days. In these situations, it is expected that an athlete will proceed progressively through a stepwise RTP strategy. During this period of recovery while symptomatic following an injury, it is important to emphasize to the athlete that physical AND cognitive rest is required.

Activities that require concentration and attention (eg, scholastic work, video games, text messaging, etc) may exacerbate symptoms and possibly delay recovery. In such cases, apart from limiting relevant physical and cognitive activities (and other risk-taking opportunities for re-injury) while symptomatic, no further intervention is required during the period of recovery, and the athlete typically resumes sport without further problem.

Return-to-play protocol following a concussion follows a stepwise process (as outlined in **Table 1**). With this stepwise progression, the athlete should continue to proceed to the next level if asymptomatic at the current level. Generally, each step should take twenty-four hours, so that an athlete may take up to approximately one week to proceed through the full rehabilitation protocol once asymptomatic at rest and with provocative exercise. If any post-concussion symptoms occur while in the stepwise program, then the patient should drop back to the previous asymptomatic level and try to progress again after a further twenty-four hour period of rest has passed.

Table 1.

Graduated Return-to-Play Protocol

Rehabilitation Stage	Functional Exercise at Each Stage of Rehabilitation	Objective of Each Stage
1. No activity	Complete physical and cognitive rest	Recovery
2. Light aerobic exercise	Walking, swimming, or stationary cycling, keeping intensity to 70% of maximum predicted heart rate; no resistance training	Increase heart rate
3. Sport-specific exercise	Skating drills in ice hockey, running drills in soccer; no head impact activities	Add movement
4. Non-contact training	Progression to more complex training drills, eg, passing drills in football and ice hockey; may start progressive resistance training drills	Exercise, coordination, and cognitive load
5. Full-contact practice	Following medical clearance, participate in normal training activities	Restore athlete's confidence; coaching staff assesses functional skills
6. Return to play	Normal game play	

(G) Modifying Factors in Concussion Management

Bowling Green State University is in agreement with The Zurich consensus Statement that there are multiple factors that may modify the management strategy and return to play protocol detailed above. These factors are listed below from the Zurich Statement.

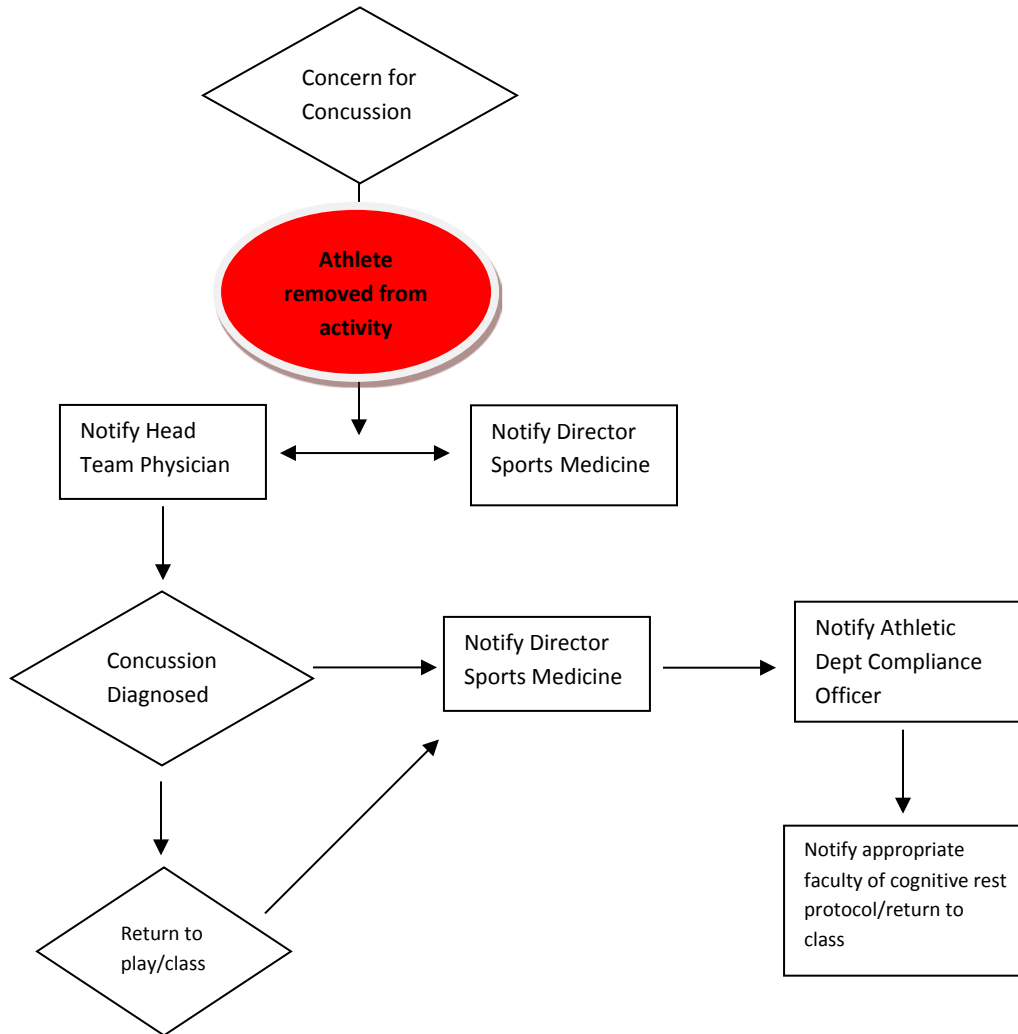
Factors	Modifier
Symptoms	Number Duration (greater than 10 days) Severity
Signs	Prolonged loss of consciousness (greater than 1 min), amnesia
Sequelae	Concussive convulsions
Temporal	Frequency: repeated concussions over time. Timing: injuries close together in time "Recency": recent concussion or traumatic brain injury
Threshold	Repeated concussions occurring with progressively less impact force or slower recovery after each successive concussion
Age	Less than 18 y old
Co-morbidities and Pre-morbidities	Migraine, depression, or other mental health disorders, attention deficit hyperactivity disorder (ADHD), learning disabilities (LDs), sleep disorders
Medication	Psychoactive drugs, anticoagulants
Behavior	Dangerous style of play
Sport	High-risk activity, contact and collision sport, high sporting level

If any of these modifying factors apply to the concussed athlete, the management plan may be adapted to ensure the safety of the athlete during recovery and return to play. These factors should be specifically addressed at the physician visit to determine their applicability.

If any of these modifying factors are determined to be clinically significant for the concussed athlete, consultation with neurology will be accomplished to assist in appropriate management and return to play decisions. It is recommended that this consultation be to a neurologist specifically trained in concussion management.

(H) Coordination of Care

Bowling Green State University recognizes that the appropriate management of the concussed athlete requires the coordinated efforts of the sports medicine team as well as coaches, athletic department staff and in some cases disability services. The following outline regarding the communication of necessary information should serve as a guide and adapted when appropriate to ensure a complete and coordinated plan of care for the injured athlete.



In the event prolonged concussive symptoms occur, the Head Team Physician will notify both the Director of Sports Medicine as well as Disability Services in order to arrange and ensure appropriate accommodations are made for the athlete during his cognitive rest period as well as to assist in his return to class when medically cleared.

(I) Documentation

Events observed and recognized as potential concussive events as well as events brought to the attention of sports medicine personnel related to a potential concussion will be documented in that athlete's medical record. The evaluation and plan of care will be documented including restrictions and return to play decisions.

(J) Education

Each team including student athletes, coaches and associated athletic training personnel will receive education at the first team meeting of the respective season regarding concussion and its management. This will include information regarding how concussion may occur, common symptoms of concussion, and warning signs of more severe injury. This presentation will review the sports medicine management plan including this protocol.

Date: January 1st, 2014