Concussion Management Policy

Introduction

Messiah University is committed to protecting the health of and providing a safe environment for each of its participating NCAA student-athletes. To this end, and in accordance with NCAA legislation, Messiah University has adopted the following Concussion Safety Protocol for all NCAA student-athletes. This protocol identifies expectations for institutional concussion management practices as they relate to (1) the definition of sport-related concussion; (2) independent medical care; (3) preseason education; (4) pre-participation assessment; (5) recognition and diagnosis; (6) initial suspected concussion evaluation; (7) post-concussion management; (8) return-to-learn; (9) return-to-sport; (10) limiting exposure to head trauma; (11) order of care for sport-related concussion, post-concussion syndrome, disqualification from sport for concussion; and (12) written certificate of compliance signed by the athletics health care administrator.

1. Definition of Sport-Related Concussion

The Consensus Statement on Concussion Sport, which resulted from the 5th international conference concussion in sport, defines sport-related concussion as follows:

Sport-related concussion (SRC) is a traumatic brain injury caused by a direct blow to the head, neck, or body resulting in an impulsive force being transmitted to the brain that occurs in sports and exercise-related activities. This initiates a neurotransmitter and metabolic cascade, with possible axonal injury, blood flow change, and inflammation affecting the brain. Symptoms and signs may be present immediately, or evolve over minutes or hours, and commonly resolve within days but may be prolonged.

No abnormality is seen on standard structural neuroimaging studies (computed tomography or magnetic resonance imaging T1- and T2-weighted images), but in the research setting, abnormalities may be present on functional, blood flow or metabolic imaging studies. Sport-related concussion results in a range of clinical symptoms and signs that may or may not involve loss of consciousness. The clinical symptoms and signs of concussion cannot be explained solely by (but may occur concomitantly with) drug, alcohol, or medication use; other injuries (such as cervical injuries, peripheral vestibular dysfunction); or other comorbidities (such as psychological factors or coexisting medical conditions).

2. Independent Medical Care

As required by NCAA Independent Medical Care legislation, team physicians and athletic trainers shall have unchallengeable autonomous authority to determine medical management and return-to-activity decision, including those pertaining to concussion and head trauma injuries, for all student-athletes.

3. Preseason Education

All NCAA student-athletes will be provided and allowed an opportunity to discuss educational material (i.e., NCAA Concussion Education Fact Sheet and the NCAA Concussion Education Video) and be required to sign an acknowledgment form, on an annual basis and prior to participation, that they have been provided, reviewed, and understood the concussion educational material.

All coaches, team physicians, athletic trainers, directors of athletics, and other athletics personnel involved in NCAA student-athlete health and safety decision-making will be provided and allowed an opportunity to discuss educational material (i.e., NCAA Concussion Education Fact Sheet) and be required to sign an acknowledgement, on an annual basis, that they have been provided, reviewed and understood the concussion education material.

4. Pre-Participation Assessment

All NCAA student-athletes will undergo a pre-participation baseline concussion assessment. This pre-participation assessment will be conducted at Messiah University and scheduled by the Messiah University Athletic Healthcare Administrator, and at a minimum, will include assessment for the following:

- History of concussion or brain injury, neurologic disorder, and mental health symptoms and disorders: health history form
- Symptom evaluation: SWAY testing
- Cognitive assessment: SWAY testing
- Balance evaluation: SWAY testing

The team physician will determine pre-participation clearance and any need for additional consultation or testing and will consider for a new baseline concussion assessment at six months or beyond for any NCAA student-athlete with a documented concussion, especially those with complicated or multiple concussion history. All baseline assessments occur annually. Baseline testing may inform post-injury evaluation; however, student-athletes who have suffered a concussion pay perform at the same level or even better than their baseline testing, as motivation and other factors may differ in post-concussion testing. Ultimately, baseline testing serves as one of the many potential factors in making a clinical decision.

5. Recognition and Diagnosis of Concussion

Athletic trainers through the Sports Medicine Staff at Messiah University will be present at all NCAA competitions, specifically identifying the contact/collision sports: baseball, men's and women's basketball, field hockey, men's and women's lacrosse, pole vault (track and field), men's and women's soccer, softball, men's and women's volleyball, and wrestling.

NOTE: To be present means to be on-site at the campus or arena of competition. Medical personnel may be from either team or may be independently contracted for the event.

Athletic trainers will be available at all NCAA practices, specifically identifying contact/collision sports: baseball, men's and women's basketball, field hockey, men's and women's lacrosse, pole vault (track and field), men's and women's soccer, softball, men's and women's volleyball, and wrestling.

NOTE: To be available means that, at a minimum, athletic trainers can be contact at any time during the practice via telephone, messaging, email, or other immediate communication means and that the case can be discussed through such communication, and immediate arrangements can be made for the athlete to be evaluated.

Any NCAA student-athlete that exhibits signs, symptoms, or behaviors consistent with a concussion:

- Must be removed from practice or competition for evaluation.
- Signs that warrant immediate removal from the field include: actual or suspected loss of consciousness, seizure, tonic posturing, ataxia, poor balance, confusion, behavioral changes, and amnesia.
- Must be evaluated by an athletic trainer or team physician (or physician designee) with concussion experience. See Concussion Diagnosis sheet.
- Allow ample time (up to 10-15 minutes) when conducting a multimodal screen (i.e., SCAT 6) to evaluate a potential concussion.
- Must be removed from practice/play for that calendar day if concussion is confirmed or suspected.
- May only return to play the same day if the athletic trainer, team physician, or physician designee determines that concussion is no longer suspected after evaluation. Even in such cases, consider next day follow-up assessment because initial symptoms may evolve over hours.

6. Initial Suspected Concussion Evaluation

A concussion will be assumed if any non-baseline symptoms are detected after a blow to the head. A series of testing will occur upon diagnosis of a concussion:

1. Immediate assessment/neurological screen for 'red flags': cervical spine trauma, skull fracture, intracranial bleed, or other catastrophic injury. If suspected, activate EAP.
2. Cranial nerves evaluated. Should there be abnormal findings, referral to Emergency Department is warranted to rule out any intracranial bleed of the brain.
3. Symptom checklist completed: SCAT6 checklist
4. Physical and neurological examination: Vestibular-ocular motor screening (VOMS)
5. Balance examination: Modified BESS Test
6. Cognitive evaluation: SCAT6 (orientation, immediate memory, concentration, coordination, delayed memory)
7. Vital signs recorded.
8. All diagnostic criteria above will be recorded on the Concussion Diagnosis form (Appendix C).

At no time should a student-athlete who is exhibiting signs and symptoms of a concussion return to participation until seen by a Messiah University AT and/or physician trained in concussion recognition, treatment, and management. Individuals exhibiting signs and symptoms of a concussion shall be removed from play the day of injury and shall not return until cleared to participate by the Team Physician.

Concussion Education: Each student-athlete will be presented with a take home sheet upon diagnosis of the injury. For all cases of diagnosed concussion, there must be documentation that post-concussion plan of care was communicated to both the student-athlete and another adult responsible for the student-athlete, in oral and/or written form. If possible, a roommate or close friend of the student-athlete will be educated and provided the same information and be given contact information of the athletic trainer. The student-athlete will be educated about the necessity of cognitive and physical rest at this time. The athletic trainer will submit an alert via the Student Care Community (SCC) regarding his/her concussion to be communicated to the following, unless patient requests no communication to be sent (see Appendix E for Concussion Academic Modification Letter):

- Instructors/professors
- Advisors
- Resident director/assistants
- Coaches

The responsibility of determining the presence of a concussion will be that of the team physician. In the event that the team physician is not present, the responsibility will pass to the athletic trainer who is the healthcare provider at that practice or competition.

7. Post-Concussion Management

Concussion Emergency Action Plan:
Activation of emergency action plan, including immediate assessment for any of the following scenarios:

- Neck pain or tenderness;
- Seizure or convulsion (without previously documented seizure disorder, or exceeds individualized seizure EAP);
- Double vision;
- Loss of consciousness;
- Weakness or tingling/burning in more than one arm or in the legs;
- Deteriorating conscious state;
- Vomiting;
- Severe or increasing headache;
- Increasingly restless, agitated, or combative Glascow Coma Scale Score <15;
- Visible deformity of the skull.

Off-Field Same-Day and up to Three-Day Post-Concussion Management:
Because concussion may evolve or manifest over time, for all suspected or diagnosed concussions, there will be in place a mechanism for serial evaluation of the student-athlete.

Documentation that post-concussion plan of care was communicated to both student-athlete and another adult responsible for the student-athlete in oral and/or written form (i.e., SCC notification, take-home information sheet).

Subacute (72 hours to weeks post-injury) Management Plan:
The following is to be recorded routinely:

- Symptom evaluation,
- Immediate and delayed memory,
- Concentration,
- Orthostatic vital signs,
- Cervical spine assessment,
- Neurological evaluation,
- Balance and tandem gait assessment,
- Modified VOMS.

Consider further evaluation as clinically indicated:

- Screen for fear, anxiety, or depression, or other mental health issues;
- Screen for sleep disturbance;
- Graded aerobic exercise testing (i.e., BCTT).

Rest and Exercise:
Symptom-limited, light aerobic physical activity can begin within 24-48 hours. Reduced screen use as necessary in the first 48 hours after injury.

Re-Evaluation Plan:
Any NCAA student-athlete with atypical presentation or persisting symptoms >4 weeks will be re-evaluated by the team physician in order to consider additional diagnoses, best management options, and consideration of referral. Additional diagnoses may include, among others: fatigue and/or sleep disorder; migraine or other headache disorders; mental health symptoms and disorders; ocular dysfunction; cervical and vestibular dysfunction; cognitive impairment and autonomic dysfunction (including orthostatic intolerance and postural orthostatic tachycardia syndrome); and pain. (See Section 11)

8. Return-to-Learn

Returning to academic activities after a concussion is a parallel concept to returning to sport after concussion. Cognitive activities require brain energy utilization and after concussion, brain energy may not be available to perform normal cognitive exertion and function. The return-to-learn concept should follow an individualized and step-wise process overseen by a point person within the Sports Medicine department (in most all cases, this will be a staff athletic trainer), who will navigate return-to-learn with the student-athlete and, in more complex cases of prolonged return-to-learn, work in conjunction with a multidisciplinary team that may vary student-to-student depending on the specifics of the case, but can include any of the following:

- Team physician,
- Athletic trainer,

- Psychologist/counselor through the Engle Center,
- Neuropsychologist consultant,
- Faculty athletics representative,
- Academic counselor,
- Course instructors/professors,
- College administrators,
- Office of disability services representative,
- Coaches.

The vast majority of young adults have a full return-to-learn with no additional academic support by 10 days post-injury. Complete rest and isolation is to be avoided, even for the initial 24-48 hours.

A student-athlete who has suffered a concussion will return to classroom/studying only as tolerated with short-term accommodations of his/her schedule/academic accommodations, as indicated, with help from the athletic trainer (point-person) in collaboration with the team physician. Campus resources will be engaged for cases that cannot be managed through schedule modification/academic accommodations. The plan may address environmental, physical curriculum, and/or testing adjustments. Campus resources will be consistent with the ADAA and will include one of the following:

- Learning specialists,
- Office of Disability Services,
- ADAAA Office.

The team physician and athletic trainer, as the healthcare team for the student-athlete, will recommend short-term accommodations for individuals who have been diagnosed with a concussion. Alerting of the student-athlete's professors, instructors, and any other individuals involved in the student-athlete's daily life will occur through the SCC online alert system. These recommendations and short-term accommodations are not mandated by Messiah University nor the American Disability Act, but are strongly encouraged to ensure the best chance at a full recovery and to support communication between the student-athlete and academic instructors.

A student-athlete will be re-evaluated by the team physician if concussion symptoms worsen with academic challenges or in the event of atypical presentation or persistent symptoms lasting longer than two weeks.

The student-athlete should notify their professor(s) that they have sustained a concussion, and work with the professor the following requests, individualized for the specific patient and class:

1. Excuse from classes;
2. Extension of due dates for assignments;
3. More time to take exams.

Note: if the concussion occurs during finals, and the patient is unable to take his/her finals, individuals meetings with the professor is necessary. Each individual professor is allowed to grant and "Incomplete" for a grade, with the expectation that the student will complete the exams at a later time, so these individualized meetings will be up to the discretion of the professor to grant.

Student-athletes who are unable to attend classes need complete cognitive rest and thus will not be allowed to attend athletic activities including contests (home and away), practices, film sessions, and other team activities until the student-athlete returns to academic classes.

RTL Progression:

1. No academic/cognitive activity
    - Full rest (cognitive and physical)
    - Screen time is limited, especially if the student is sensitive to light

    - Student is expected to communicate with professors
2. Light academic activity:
    - Limited academic/cognitive activity
    - Student may attend class, but participation is limited based on symptoms
    - Begin to increase cognitive endurance (study for 15 minutes then a mental break for 10-30 minutes)
    - Recommended that tests/exams and assignments have a delayed submission date
3. Increased academic activity:
    - Normal class attendance and participation in class
    - Student will continue to gain endurance and study for longer time frames with less mental breaks
    - Recommended that tests/exams and assignments continue to be delayed but plans to make them up can be discussed
4. Full return to academic rigor:
    - Student is expected to be in class and resume normal participation
    - Student returns to normal study habits
    - Student is expected to now take exams and turn in assignments
    - Make up work can now occur

9. Return-to-Sport

Final authority for unrestricted return-to-sport will be at the sole discretion of the Messiah University team physician. Communication with the team physician from the athletic trainer must be constant and throughout every step should the team physician not be physically present. Telehealth during the RTP process can be a viable option, should the physician not be able to be physically present.

Clearance to progress through the return to play (RTP) protocol will be based on the following criteria:

1. Patient is symptom-free for >24 hours.
2. Patient completes the BCTT and D/C the test due to exertion, not increase in symptoms.
3. Patient completes the ImPACT test and the score reflects that of his/her baseline test. This test must be completed before the patient can progress to step 3 of the RTP progression.
4. Patient has completed the RTL progression. See RTL section above.
5. Team Physician has determined based on the above objective criteria that the patient is able to progress to the RTP protocol.

Return-to-Sport protocol: (patient may not progress to next step unless patient has remained asymptomatic since completion of activity and asymptomatic through each progressive step).

- Step 1: Symptom-limited activity
- Step 2: Aerobic activity with light resistance training as tolerated (no more than mild, and increase of no more than 2 on a 0-10 point scale when compared to pre-exercise resting value, or brief, less than 1 hour, exacerbation of symptoms):
    - 2a: light (up to approximately 55% max HR)
    - 2b: moderate (up to approximately 70% max HR).
- Step 3: Increased aerobic activity
    - Running and speed progression
    - Body weight strength training exercises (push-ups, squats, sit-ups)
    - 15-20 minutes of sport-specific agility drills

Proceed to Step 4 only after resolution of signs and symptoms related to the current concussion, including with and after physical exertion.

- Step 4: Exertional testing and non-contact drills
    - May begin progressive resistance exercise and participation in normal practice, but only non-contact drills.
- Step 5: Full contact practice
    - Must have full medical clearance from Team Physician to participate in full contact practice.

    - Specific functional sport skills are assessed by coaching staff.
- Step 6: Unrestricted return-to-sport

NOTE: If at any point the student-athlete becomes symptomatic (more symptomatic than baseline), the team physician will be notified. The patient must have at least 24 hours asymptomatic before attempting the previous day that caused symptoms, and then progress through the return-to-sport.

10. Limiting Exposure to Head Trauma

Messiah University is committed to protecting the health of and providing a safe environment for each of its participating NCAA student-athletes. To this end and in accordance with NCAA association-wide policy, Messiah University will limit student-athlete head trauma exposure in a manner consistent with Interassociation Recommendations: Preventing Catastrophic Injury and Death in Collegiate Athletes, and the Consensus Statement on Concussion in Sport: the 6th International Conference on Concussion in Sport – Amsterdam, October 2022.

- Messiah University teams will adhere to existing ethical standards in all practices and competitions.
- Using playing or protective equipment (including the helmet) as a weapon will be prohibited during all practices and competitions.
- Deliberately inflicting injury on another player will be prohibited in all practices and competitions.
- All playing and protective equipment (including helmets), as applicable, will be meet relevant equipment safety standards and related certification requirements.
- All contact/collision, helmeted practices and competitions will adhere to keep the head out of blocking and tackling.
- Emphasizing education of proper technique to reduce head impact exposure for all contact and collision sports, with a special emphasis in the pre-season.
- Limit the number and duration of contact and collision in practices, intensity of contact in practice, and promote strategies restricting collision time in practices in contact-collision sports.
- Adherence to policy and rules in sport that reduce collisions.
- Consideration of participation in neuromuscular training warm-up programs.

11. Post-Concussive Syndrome Patient, and Disqualification From Sport

Post-Concussive Syndrome Patients
Should a student-athlete's progress through the concussion be slowed (>4 weeks) with symptoms persisting. Common symptoms of post-concussive syndrome include: headache; dizziness; insomnia; exercise intolerance' cognitive intolerance; psychological symptoms such as depressed mood, irritability, and anxiety; cognitive problems involving memory loss, poor concentration, and problem solving; fatigue, or noise and light sensitivity. It should be noted that there is little proven correlation between the severity of the concussion and the likelihood of developing post-concussion syndrome, structural damage to the brain, or the presence of psychological factors. Patients that exhibit consistencies with post-concussion syndrome will be monitored by the Team Physician and based on the Team Physician's recommendations, referred to a neurologist specializing in concussions. This will also be based on the patient's primary health insurance restrictions to determine appropriate location for referral.

Disqualification from Sport
If, at any time it is suggested to disqualify a patient from participating in sport due to concussion, there are several factors that should be considered. There is no agreed upon absolute number of concussions an individual can sustain before disqualification from contact sports is necessary. Factors that can consider include: structural abnormality on neuroimaging; multiple lifetime concussions, persistent diminished academic or workplace performance, persistent post-concussive symptoms, prolonged recovery courses, and perceived reduced threshold of sustaining recurrent concussions. The decision to disqualify from sport will include the Team Physician, athletic trainer(s), other healthcare experts, the patient, parents, and possibly the coach, to determine the best possible solution for the patient's health related quality of life indefinitely.