

CONCUSSION MANAGEMENT PROGRAM

(Effective January 2024)

The S&T Sports Medicine Program recognizes the importance of proper diagnosis, treatment, and management of concussions. NCAA Guidelines and current medical standards of practice have been used to develop the *Missouri S&T Sports Medicine Concussion Management Program* (“Program”). This Program will be updated annually.

This Program is a partnership between the medical staff, athletic trainers, coaches, and student athletes.

Reference is made to:

- NCAA Concussion Safety Protocol Checklist (mandatory)
- NCAA Sports Medicine Handbook 2014-2015 Guideline 21 “SPORTS-RELATED CONCUSSION” Revised July 2014 pages 56-64
- Concussion (Mild Traumatic Brain Injury) and the Team Physician: A Consensus Update – 2011 Sports Medicine (Update January/February 2012)
- National Athletic Trainers’ Association Position Statement: Management of Sport Concussion Journal of Athletic Training April 2014

EDUCATION

Annually education, using materials provided by NCAA on concussions and other relevant materials, will be provided and discussion allowed for all athletes, coaches, athletic administrators, medical staff, and other personnel involved in student-athlete health and safety decision making.

All S&T student-athletes

- Will read the NCAA Concussion Fact Sheet for Student-Athletes.
- Will sign the Concussion Education Form attesting they understand the NCAA Concussion Fact Sheet.
- Will accept the responsibility for reporting their injuries and illnesses to the S&T medical staff, including signs and symptoms of concussions by signing the Concussion Reporting Agreement.

All S&T coaches (head coaches, assistant coaches, strength & conditioning coaches, and volunteer coaches), S&T Athletic Administrators (Athletic Director and Assistant Athletic Directors), and all other personnel involved with student-athlete health and safety decision making:

- Will read the NCAA Concussion Fact Sheet for coaches.
- Will sign the Concussion Management Plan Acknowledgement that they understand the NCAA Concussion Fact Sheet and the *Missouri S&T Concussion Management Program*.
- Will encourage their student-athletes to report any suspected injuries and illnesses to the institutional medical staff, including signs and symptoms of concussions; and that they accept the responsibility for the referring any student-athlete to the medical staff suspected of sustaining a concussion.
- Will receive education on ways to limit head trauma exposure and equipment usage.
- Will read, understand, and will follow the *S&T Concussion Management Program*.

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All S&T team physicians, physician extenders, athletic trainers, graduate assistant athletic trainers, intern athletic trainers, and undergraduate athletic trainers:

- Will encourage their student-athletes to report any suspected injuries and illnesses to the S&T medical staff, including signs and symptoms of concussions.
- Will read and understand, and will follow, the *S&T Sports Medicine Concussion Management Program*.
- Will read and sign the Provider Concussion Statement.

The Student Health Educator:

- May promote campus awareness of concussion reporting and management through programs and marketing. This will include current information that is available through the Center for Disease Control and other authoritative sources.
- Make the updated *S&T Sports Medicine Concussion Management Program* document accessible through the S&T Sports Medicine website.

PRE – PARTICIPATION BASELINE CONCUSSION ASSESSMENT

All student-athletes will receive pre-participation baseline concussion assessments regardless of sport annually.

- Testing documentation can be found in the ImPact testing system.
- Testing includes: History of concussions, brain injuries, neurologic disorders, and mental health symptoms and disorders; symptom evaluation; and ImPACT cognitive software, vestibular ocular testing, and balance testing.
- Testing will occur before a student-athlete is cleared to participate in their first practice or competition.

RECOGNITION AND MANAGEMENT

Because recognition of a concussion is difficult and the associated symptoms may be vague, S&T medical staff will take an active approach to early head injury recognition. If there is any doubt, the student-athlete will be taken out of competition.

At least one Missouri S&T Certified Athletic Trainer who is trained in the diagnosis, treatment, and initial management of concussions will be present on-site at all NCAA varsity competitions in the following contact/collision sports: baseball, basketball, football, pole vault, soccer, softball, and volleyball.

At least one Missouri S&T Certified Athletic Trainer who is trained in the diagnosis, treatment, and initial management of concussions will be available at all NCAA varsity practices in the following contact/collision sports while in season: baseball, basketball, football, pole vault, soccer, softball, and volleyball. “Available” is defined as medical personnel can be contacted at any time during each practice via telephone, messaging, email, beeper, or other immediate communication means and that the case can be discussed through some communication. Immediate arrangements can be made for the student-athlete to be evaluated.

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Diagnosis starts with recognition or reports of wide variety of potential symptoms. Possible Signs and Symptoms of Concussions include:

Symptoms (physical)

- Headache
- Nausea or vomiting
- Blurred Vision
- Balance Problems
- Fatigue or Low Energy
- Sensitivity to Light
- Sensitivity to Noise
- Numbness/Tingling
- Dizziness/Dazed
- Loss of Consciousness
- Seizure or Convulsions
- Amnesia
- “Pressure to the Head”
- Neck Pain.

Symptoms (cognitive)

- Feeling Mentally “Foggy”
- Feeling Slowed Down
- Difficulty Concentrating
- Difficulty Remembering
- Forgetful of Recent Information
- Forgetful of Recent Conversations
- Confused about Recent Events
- Answers Questions Slowly
- More Emotional
- Drowsiness
- Irritability
- Sadness
- Nervous or Anxious.

Management

- Emergency action plan must be put in action with the calling of 911 with any of the following:
 - Glasgow Coma Scale of <13
 - Prolonged loss of consciousness
 - Focal neurological deficit
 - Repetitive vomiting
 - Persistent diminishing mental or neurological status
 - Spine injury
 - Weakness or tingling/burning in more than one arm or in the legs.
 - Visible deformity of the skull
 - Seizure or convulsion
 - Tonic posturing
 - Ataxia
 - Severe or increasing headache
 - Double vision (in conjunction with other symptoms)
 - Increasing restless, agitated, or combative
- Missouri S&T medical staff shall be notified immediately of any signs and symptoms of a concussion that is witnessed, reported or suspected.
- Student-Athlete will be immediately taken out of participation (practice or competition).
- A sideline evaluation will be promptly administered by an athletic trainer to include but not limited to: symptom assessment (GSC), physical and neurological exam (King Devick and/or VOMS), cognitive assessment (Maddocks) and balance exam (BESS) should be performed.
- Student-Athlete may only return to play in practice or competition the same day if ALL of the following are present:

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- The student-athlete passes the sideline evaluation
- The student-athlete is not diagnosed with a concussion and does not present any concussion like symptoms at rest or with exertion tests and is cleared to return to play in practice or competition by a physician or medically qualified physician designee.
- There is a minimum of 15 minutes observation with monitoring.
- Student-Athlete is removed from play if he/she fails any part of the sideline evaluation
 - If removed from play, the student-athlete is not to return for the remainder of the practice/competition.
 - The student-athlete will be taken to a quiet place at earliest convenience to complete a written SCAT5 form
 - The student-athlete will be diagnosed with a concussion.
 - If student-athlete sustains loss of consciousness or displays a progression or deterioration of mental or physical condition, the student-athlete will be sent immediately to the local emergency room via ambulance with additional emphasis on cervical spine and airway stabilization.

Immediate Referral (day of injury)

- Amnesia lasting longer than 15 minutes
- Deterioration of neurologic function
- Decreasing level of consciousness
- Decrease or irregularity in respirations
- Decrease or irregularity in pulse
- Increase in blood pressure
- Unequal, dilated, or un-reactive pupils
- Cranial nerve deficits
- Any sign or symptom of associated injuries, spine or skull fracture or bleeding
- Mental status changes: lethargy, difficulty maintaining arousal, confusion, agitation
- Seizure activity
- Motor deficits subsequent to initial on-field assessment
- Balance deficits subsequent to initial on-field assessment
- Sensory deficits subsequent to initial on-field assessment
- Cranial nerve deficits subsequent to initial on-field assessment
- Post-concussion symptoms that worsen
- Additional post-concussion symptoms as compared with those on the field

Delayed Referral (after the day of injury)

- Any of the findings in the day of injury referral category
- Post-concussion symptoms worsen or do not improve over time
- Increase in the number of post-concussion symptoms reported
- Post-concussion symptoms begin to interfere with the athlete's daily activities (i.e. sleep disturbances, cognitive difficulties)

POST-CONCUSSION MANAGEMENT

During Competition

- If the student-athlete does not display emergent symptoms he/she will remain on the sidelines and will be rechecked periodically for changing symptoms by the medical staff.
- If at any time during the competition the medical staff feels that the student-athlete's symptoms require an assessment beyond the medical staff's scope of practice, the student-athlete will be sent immediately to the local emergency room.

Post Competition

- If determined to be stable the student-athlete will receive a copy of the approved Missouri S&T Athletic Training Post Concussion Take Home Instructions.
- A reliable person will be assigned to assist and monitor the involved student-athlete and will also review the take home instructions.
- The assigned person will be responsible for notifying the assigned athletic trainer if signs and symptoms deteriorate.
- A copy of this documentation will be part of the student-athlete's medical treatment record.

Follow up Evaluations

- A standardized post-concussion symptom checklist, ImpACT and balance testing will be administered in a timely manner (except when a team is traveling, then it will be done at an appropriate time), which will then be compared to the student-athlete's baseline assessment. Results of examination will be documented.
- A Provider evaluation is recommended in a timely manner post-injury.
- Student-Athletes will have continued repeat evaluations at a frequency determined by the athletic trainer and the team physician.
- With any deterioration of symptoms or decline in examination the student-athlete will be considered for additional imaging or specialty referral as necessary.
- The student-athlete will be educated on Second Impact Syndrome.
- Prolonged symptoms will be assessed for Post-Concussion Syndrome.
- A member of the Sports Medicine team will work with S&T's disability office for any return to school issues for a student-athlete.
- Student-athletes with atypical presentation or persisting symptoms for > 2 weeks will be re-evaluated by a physician.

RETURN TO PLAY

- The student-athlete will be re-tested using the symptom checklist, ImpACT and balance testing along with any additional neurologic testing.
- The athletic trainer will collaborate with the team physician for a graduated return to play protocol under the supervision of a certified athletic trainer.
 - An ImpACT test will be completed prior to stage 3.
 - Proceed to stage 4 only after resolution of signs and symptoms related to the current concussion, including with and after physical exertion.
 - The athletic trainer notes, and GCS will be tasked to the physician prior to stage 5

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- The student-athlete must be cleared for play by the team physician prior to completing stage 6 of the return to play protocol
- Refer to return to play stages and supplemental documentation form.
 - Return to Play Stages (individualized based on sport)
 1. Symptom-limited activities of daily living
 2. Light aerobic exercise without resistance training (no more than mild or brief exacerbation of symptoms)
 - a. Light (up to approximately 55% max heart rate)
 - b. Moderate (up to approximately 70% max heart rate)
 3. Sport-specific exercise and activity without head impact
 4. Non-contact practice with progressive resistance training
 5. Unrestricted practice
 6. Return to competition
- The student-athlete must be cleared for play by the team physician prior to completing stage 6 of the return to play protocol.
- Final clearance and all intermediate clearances will be documented in the student-athlete medical treatment record.

RETURN TO LEARN

- Each student-athlete is assessed by the team physician for the ability to attend classes and perform academic work and referred to Disability Services and/or Case Manager on an individual basis.
- Avoid complete rest and isolation, even for the initial 24-48 hours
- With a multidisciplinary team (physician, athletic trainer, faculty representative, coaches, etc.) a gradual return to learn plan will be on an individualized basis.
- Re-evaluation by the team physician if concussion symptoms worsen with academic challenges.

CONCUSSION REPORTING

- All concussions and resolutions will be reported to the NCAA as per NCAA guidelines.

THE S&T SPORTS MEDICINE PROGRAM

- Does not allow coaches to serve as the primary supervisor for athletic health care providers (e.g., sports medicine staff, athletic trainer, team physician, outside physician).
- Gives qualified health care providers with experience in the evaluation and management of TBI's and concussions the final authority to remove any such student-athlete with "possible TBI or concussion" from athletic activity (such as competition, practice, or conditioning sessions).
- Gives qualified health care providers with experience in the evaluation and management of TBI's and concussions final authority to prevent the return to athletic activity (such as competition, practice, or conditioning sessions) of any such student-athlete with "possible TBI or concussion."
- Gives qualified health care providers with experience in the evaluation and management of TBIs and concussions final authority to immediately refer any such student-athlete with "possible TBI or concussion" to an appropriately qualified physician or emergency service provider.

Missouri S&T Sports Medicine Department Concussion Take-Home Instructions

The student-athlete with a concussion will need to be observed by a responsible adult for the first 24 hours or until examination by the team physician. Please review the items outlined below. If any of these problems occur, please contact the emergency medical system IMMEDIATELY. Additionally, be sure to contact the Certified Athletic Trainer.

If the athlete experiences the following symptoms, call 911 or take them to the emergency room immediately:

- Repeated vomiting
- Headache that gets worse
- Loss of consciousness
- Inability to be awakened
- Getting more confused, restless, or agitated
- Convulsions or seizures
- Difficulty walking/balance problems
- Weakness or numbness
- Difficulty with vision
- Any symptom that concerns you

Otherwise, please follow the instructions below:

- Get plenty of sleep at night and rest as much as possible during the day.
- Limit stimulus to the brain such as light, noise, surrounding activity. Wear sunglasses, keep music low, and limit computer, TV, and video games.
- Use only acetaminophen (Tylenol) for headache or neck pain. DO NOT use ibuprofen or other anti-inflammatory medications because of increased risk of bleeding.
- Eat a normal diet

Do NOT:

- Drink Alcohol
- Take Medications that cause drowsiness such as sleeping pills, cold medicine, pain medicines, muscle relaxors, etc.
- Drive until clear to do so by the team physician
- Participate in any physical activity until cleared to do so by team physician

Please contact your Certified Athletic Trainer with any questions at: _____

Missouri S&T Sports Medicine Department Verification of Concussion Take-Home Instructions

I, _____, have been informed of the post-concussion instructions established by the Missouri S&T medical staff.

The following person(s), _____, agrees to observe me over the next 12-24 hours and report any changes listed on the Concussion Take-Home Instruction Sheet as instructed.

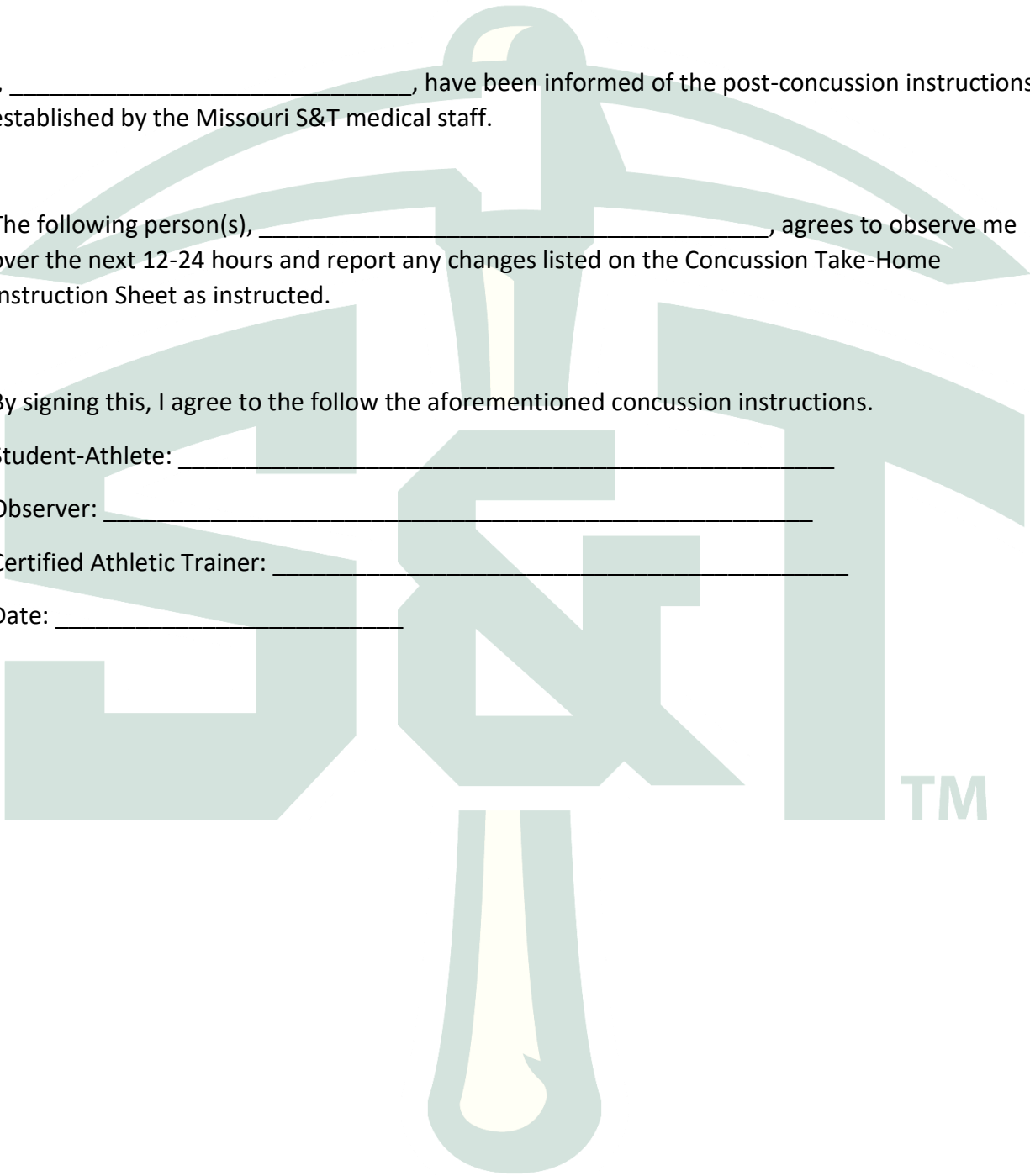
By signing this, I agree to follow the aforementioned concussion instructions.

Student-Athlete: _____

Observer: _____

Certified Athletic Trainer: _____

Date: _____



Concussion Education Form

(ACS Form)

The following information has been provided from the “NCAA Fact Sheet for Student-Athletes regarding Concussions”, visit [here](#) and for additional information from the Center for Disease Control and Prevention, visit [here](#).

A concussion is a traumatic brain injury that is a blow to the head and/or body. This can occur from contact with another player, hitting a hard surface such as the ground, ice or floor, and/or being hit by a piece of equipment such as a bat, lacrosse stick, field hockey ball, etc. A concussion can change the way your brain normally works and can range from mild to severe. A concussion will present differently for each athlete but can happen even if the individual does not lose consciousness.

SYMPTOMS OF A CONCUSSION

You cannot “see” a concussion, but you may notice some of the symptoms immediately after contact. Other symptoms can show up hours or days after the injury occurs. Concussion symptoms can include:

- Amnesia (memory loss)
- Headache
- Balance problems or dizziness
- Sensitivity to light or noise
- Confusion
- Loss of Consciousness
- Double or “Fuzzy” vision
- Nausea (feeling that you might vomit)
- Feeling unusually irritable
- Slowed reaction time
- Feeling sluggish, foggy or groggy
- Concentration or memory problems

Exercise or activities that involve concentration, such as studying, working on the computer, or playing video games may cause concussion symptoms (such as headache or tiredness) to reappear or worsen.

IF YOU SUSTAIN A CONCUSSION

Do not hide it. Tell your athletic trainer and/or coach. Never ignore a blow to the head. Also, tell your athletic trainer or coach if one of your teammates might have a concussion. Sports have injury timeouts and player substitutions so that you can be evaluated.

Report it. Do not return to participation in a game, practice, or other activity with symptoms.

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Get evaluated. Your team physician, athletic trainer, or health care profession can tell you if you have had a concussion and when you are cleared to return to play. A concussion can affect your ability to perform everyday activities, your reaction time, balance, sleep and classroom performance.

Take time to recover. If you have had a concussion, your brain needs time to heal. While your brain is still healing you are much more likely to have a repeat concussion. In rare cases, repeat concussion can cause permanent brain damage and even death. Severe brain injury can change your life.

By signing this form, I acknowledge that I am aware that participation in intercollegiate athletics at the institution involves the risk of personal injury and may result in a head injury and/or concussion. I am also aware that if I sustain a concussion, I am at an increased risk for serious illness or injury, including death. I understand that if the institution believes, in its reasonable judgment, that I may have sustained a concussion or have concussion symptoms the institution may require evaluation in order to ensure my safety. After evaluation, the institution may withhold me from practice and/or competition until the signs and symptoms observed and reported are fully resolved. I have had a full opportunity to ask questions concerning concussions and discuss the risks associated with participation in intercollegiate athletics at the institution if I have a concussion and do not report it. I have been provided with education on head injuries and understand the importance of immediately reporting symptoms of a head injury/concussion to my athletic training staff. I understand that this release means that, among other things, I am giving up my right to sue the institution for any such losses, damages, injury or costs that I may incur.

By signing this form, I have read and I understand and voluntarily agree to all of the statements contained in this form.

STUDENT-ATHLETE SIGNATURE

By entering my ID Number in the box, I indicate my understanding of the information shown and provided on this form, and it is my intent to sign the record. I certify that my answers are complete and correct, and that any fraudulent information may make me ineligible for intercollegiate athletic competition and/or athletically related financial aid. I understand that my institution may share this information with the NCAA and/or Conference Office and that a photocopy of this authorization shall be as valid as an original.

ID Number: _____

Name: _____ Sport: _____

Concussion Reporting Agreement

(ACS Form)

Concussions occur at a rate of approximately 300,000 per year. Participation in sports is a common cause of these injuries. At the collegiate level concussions most commonly occur in football, ice hockey, men's and women's soccer and men's lacrosse, however there are a significant percentage of these injuries occurring in men's and women's basketball, women's lacrosse and other traditionally noncontact sports (NCAA Guideline 2i, 2009). The goal is to identify and diagnose concussions so that each individual receives adequate healing of the brain to prevent a phenomenon called second impact syndrome. This is a debilitating and most often deadly syndrome that occurs when a second concussion occurs before the initial concussion has properly healed.

The NCAA requires each participating institution to have a concussion management plan on file so that each case is handled to provide safe, consistent, and evidence-based care. Reporting concussions are the responsibility of the coach, athletic trainer but most importantly the student athlete. It is important to be able to identify the signs and symptoms of a concussion and report these to your coach, athletic trainer or student health center. The following link is a fact sheet on concussions provided by the NCAA, visit [here](#) and Center for Disease Control and Prevention, visit [here](#). Please read this and then complete the section below.

The following information needs to be filled out and signed prior to participation in athletics at Missouri University of Science and Technology.

I _____ have been given information on concussions, understand and now accept the responsibility for reporting any injuries and illnesses related or unrelated to my sport to the institutional medical staff including signs and symptoms of a concussion immediately.

Signature: _____

Date: _____

Concussion Management Plan Acknowledgement

ACKNOWLEDGEMENT: I understand the Missouri S&T Concussion Management Plan and the NCAA coach's fact sheet, visit [here](#). I understand importance of the proper management of student-athletes who exhibit any sign and symptom of a concussion. I have received the concussion management plan and any additional education that is needed for my understanding about concussions. I understand my role is to emphasize safe practices within current rules of my individual sport with regards to purposeful or flagrant head or neck contact.

INJURY REPORTING: I understand that I am not a healthcare professional and should not evaluate the student-athlete. I understand that final authority for return-to-play resides with the Missouri S&T team physician or his/her designee. My role as a coach is to remove the student-athlete from play who has exhibited any sign and symptom of a concussion and instruct the student-athlete to seek immediate evaluation from the Missouri S&T medical staff.

These symptoms may include one or more of the following:

- Loss of consciousness
- Seizure or convulsion
- Amnesia
- Headache
- "pressure in the head"
- Neck pain
- Nausea or vomiting
- Dizziness
- Blurred vision
- Balance problems
- Sensitivity to light
- Sensitivity to noise
- Feeling slowed down
- Feeling like "in a fog"
- "don't feel right"
- Difficulty concentrating
- Difficulty remembering
- Fatigue or low energy
- Confusion
- Drowsiness
- More emotional
- Irritability
- Sadness
- Nervous or anxious

Any of these symptoms associated with a head injury and repetitive hits to the head may also pose long-term risks and lasting effects.

Coach's Signature: _____ Date: _____