



Florida State University-Sports Medicine

Concussion and Mild Traumatic Brain Injury (mTBI) Management Plan

Last Updated: March 15, 2019

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Intended Audience

Intended Use

The Florida State University-Sports Medicine Concussion and Mild Traumatic Brain Injury (mTBI) Management Plan exists for the use of Florida State University Athletic Trainers, Student Athletic Trainers, and Team Physicians. A hard copy and electronic version of the Florida State University-Sports Medicine Concussion and mTBI Management Plan will be provided to all Florida State University Athletic Trainers. The Florida State University-Sports Medicine Concussion and mTBI Management Plan will also be available online for Florida State University Student Athletic Trainers to access at their convenience. A hard copy or electronic version of the Florida State University-Sports Medicine Concussion and mTBI Management Plan will be made available to any member of the Florida State University Coaching Staff at their request. Any questions regarding the Florida State University-Sports Medicine Concussion and mTBI Management Plan should be directed toward Joshua Chatman, Athletic Trainer (Football). This document will serve as the official concussion management plan for the Florida State University-Sports Medicine department and will be transmitted to the required/designated organizations for compliance with NCAA concussion management policies and procedures.

Introduction

Policy

This document is intended to provide a stepwise process to evaluate and manage a sports-related head injury or concussion from an athletic trainer and team physician perspective. The Florida State University-Sports Medicine Concussion and mTBI Management Plan is designated for implementation with Florida State University sanctioned intercollegiate sports.

Rationale

The Florida State University is committed to the identification, evaluation, management, and treatment of concussions sustained by student-athletes. All concussion management and treatment procedures will be in compliance with the NCAA Concussion Management Plan, set forth by the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports (CSMAS).

Definition of Concussion

The Berlin 2016 Consensus Statement provides the following definition of sport related concussion. Sport related concussion (SRC) is a traumatic brain injury induced by biomechanical forces. Several common features that may be utilized in clinically defining the nature of a concussive head injury include:

1. SRC may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an impulsive force transmitted to the head.
2. SRC typically results in rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms 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.

The clinical signs and symptoms cannot be explained by drug, alcohol, or medication use, other injuries (such as cervical injuries, peripheral vestibular dysfunction, etc) or comorbidities (eg, psychological factors or coexisting medical conditions).

Signs of Acute Concussion

The diagnosis of acute concussion involves the assessment of multiple domains including physical signs. Common acute signs of concussion may include but are not limited to the student-athlete appearing; dazed or confused, moving clumsily, changes in behavioral or emotional functioning, difficulty remembering plays or assignments, changes in balance, vomiting, loss of memory for events before or after the trauma, seizure or “fencing” response, and loss of consciousness.

Symptoms of Acute Concussion

Clinical symptoms may also be present in acute concussion. Acute symptoms may be somatic, cognitive, emotional, or sleep related in nature. Student-athletes may or may not be reticent to divulge symptoms of concussion, as a result subjective symptoms based on student-athlete self-report provides a single component of a comprehensive evaluation of acute concussion. Common symptoms of acute concussion may include but are not limited to; headache, fatigue, drowsiness, visual changes (blurry, double vision), migraine symptoms (visual aura, light sensitivity, noise sensitivity, nausea), dizziness, foggiess, balance problems, difficulty with thinking (attention, concentration, memory), and feeling slowed down [3].

Post-Concussion Syndrome (PCS)

Previous research regarding recovery and collegiate athletes suggests the majority of concussions (80%-90%) resolve in a short period of time (7-10 days) [4]. The FSU Sports Medicine Department recognizes that recovery from concussion differs on a case by case basis. Recovery time may be longer in some cases resulting in symptoms of post-concussion syndrome (PCS). While a lack of consistency exists in the literature regarding the timeline and transition from acute concussion to PCS, it is possible student-athletes who sustain a concussion may continue to experience symptoms beyond 7-10 days. Symptoms of PCS include, but are not limited to; loss of intellectual capacity, poor recent memory, difficulty with multitasking, slowness of thought, foggiess, mood changes, personality changes, sleep changes, headache, migraine symptoms, dizziness, and irritability [5].

Individual Recovery from Concussion

Individual recovery following concussion can vary significantly among collegiate student-athletes. Previous studies have suggested recovery time for concussion ranges from 1-7 days for total cognitive resolution, and 3-7 days for total symptom resolution [6-8]. While previous research supports resolution in the majority of collegiate student-athletes, the FSU Sports Medicine Concussion Team recognizes some student-athletes may experience lingering symptoms beyond 7-10 days that may qualify as post-concussion syndrome. Concussion recovery among the FSU Sports Medicine Concussion Team staff is understood as existing on an individual basis. No two student-athletes are the same in terms of concussion recovery.

Underreporting of Concussion Symptoms

Previous research supports that many student-athletes often do not report symptoms of concussion. In a collegiate football sample, 47% of football players did not report their symptoms and fail to do so due to the belief that the injury doesn't warrant reporting [9]. The FSU Sports Medicine Concussion Team recognizes student-athletes may not be likely to report symptoms of concussion and as a result must rely on objective measures to aid in concussion diagnosis. These objective measures are discussed later in relation to sideline, locker-room, and follow-up evaluations. While some student-athletes may be reticent to report symptoms of concussion due to a belief that the injury doesn't warrant reporting, the FSU Sports Medicine Concussion Team recognizes that some student-athletes may lack a general education or context for concussion injuries. As a result, the FSU Sports Medicine Team is dedicated to expanding the education, knowledge, and awareness of concussions in collegiate athletics to all FSU student-athletes.

Risk Factors for Concussion in Sports

A number of risk factors exist in relation to concussion. First and foremost, a history of concussion is associated with a 2-5.8 times higher risk of sustaining another concussion [8, 10-12]. A prior history of learning disability such as ADD or ADHD has been shown to be associated with prolonged recovery and increased cognitive dysfunction [13]. A history of pre-existing migraine headaches may be a risk factor for concussion as well as being associated with prolonged recovery [14]. Previous studies of professional football players have shown specific playing styles (aggressive) may be at greater risk for concussion [15]. Other risk factors such as a history of mood disorders, gender, age, and even genetic factors (APOE G-219T) have been examined. It is possible following a concussion, student-athletes may experience an exacerbation of previous risk factors mentioned above. Similarly, these risk factors may become more pronounced during the recovery period and even contribute to prolonged recovery in some cases.

Collecting a detailed medical, academic, and psychological history is critical to proper concussion management. An awareness of the risk factors mentioned above on an individual student-athlete basis can aid in the treatment of individuals who sustain a concussion. The FSU Sports Medicine Concussion Team medical history form which covers risk factors for concussion is provided in "Appendix A".

Preseason Plan & Procedures

Preseason Plan Overview

Preparation for the care of a concussed student-athlete begins prior to any practice or competition with a pre-participation examination. The following procedures are included in The Florida State University pre-participation examination for concussion management. Pre-participation procedures for ALL Florida State University student-athletes include the following;

Preseason risk factor screening to assess risk and provide historical data as a reference in case a concussive injury is sustained by the student-athlete (Appendix A).

Baseline neurocognitive testing provides comparison data for ALL student-athletes in case a concussive injury is sustained. Baseline neurocognitive data may be more important in high risk athletes and in sports with a higher incidence of concussion injuries.

Baseline testing using a sideline concussion evaluation provides data for comparison, increased clarity when diagnosing concussion, and improved removal from play decisions. Baseline testing using a sideline evaluation tool may be more important in high risk athletes and in sports with a higher incidence of concussion (Appendix B). The Vestibular Ocular Motor Screening (VOMS) serves as an assessment of balance and vestibular functioning and will be administered to all student-athletes prior to any sport participation.

Preseason concussion education for ALL student-athletes, coaches, and graduate assistant coaches provides documentation that ALL student-athletes, coaches, and graduate assistant coaches have been provided with concussion education in accordance with NCAA requirements. Preseason concussion education and documentation will serve as a written acknowledgement that ALL student-athletes, coaches, and graduate assistant coaches have received concussion education prior to participation in any practice or competition (Appendices C-F). Pre-season education will be made available for athletic trainers, athletic directors, team physicians and they will provide a signed acknowledgement of concussion education.

Following the baseline concussion procedures, a team physician will determine whether the student-athlete is medically cleared for participation. Any additional testing or consultation will be made on an as needed basis. Team physicians will re-evaluate to determine participation if additional testing or consultation is required.

Preseason Risk Factor Screening

Individual student-athletes vary widely with respect to medical, psychological, and academic history. A detailed history that highlights risk factors commonly associated with concussion can serve as a valuable component to proper concussion treatment and management. Risk factors for concussion in sports are provided in the previous section. A summary of common risk factors for concussion include; migraines, motion sickness, psychiatric diagnoses, academic difficulties, prior concussions, and ADD/ADHD.

Risk Factor Screening Procedures

1. ALL incoming student-athlete will complete the Concussion Risk Factors form provided in “Appendix A” prior to the beginning of their eligibility at Florida State University.
2. ALL current student-athletes who have not completed the Concussion Risk Factors form will be requested to complete the form prior to their participation in Florida State University sanctioned athletics.
3. All Concussion Risk Factor form results will be given to the respective athletic trainer in charge of the designated sport. Concussion Risk Factor form data will be compiled into an excel spreadsheet and scanned into Injury Zone software.

Baseline Neurocognitive Testing

Computer-based neurocognitive assessment programs such as the ImPACT test are commonly used to document neurocognitive performance for comparison with post-concussion testing. The ImPACT test battery has been demonstrated to serve as a reliable measure of baseline neurocognitive functioning that is difficult to intentionally perform poorly without detection [16-19]. Baseline neurocognitive testing may be helpful to add useful information to the overall interpretation of neurocognitive testing. It also provides an additional educational component to discuss the significance of a concussive injury with the student-athlete.

Preseason baseline neurocognitive testing requires an honest and forthright effort on the part of the athlete. Computerized neurocognitive testing requires adequate resources and a quiet environment for best results, but can be performed in large groups [20].

Baseline Neurocognitive Testing Procedures

1. ALL incoming student-athlete will undergo baseline neurocognitive testing prior to the beginning of their eligibility at Florida State University. ALL current student-athletes will have baseline measures.
2. Invalid baseline neurocognitive tests will be repeated in a reasonable timeframe (<7 days) to assure a valid baseline exists for every student-athlete prior to the beginning of their eligibility at Florida State University.
3. The tool utilized by the Florida State University-Sports Medicine Department to assess neurocognitive functioning will be the ImPACT test (ImPACT Applications, Inc. Pittsburgh, PA). The C3 Logix Integrated Concussion Management System will be utilized for the objective and quantitative analysis.
4. ALL baseline neurocognitive results will be available to the respective athletic trainer in charge of the designated sport. Baseline neurocognitive testing results are maintained online through the ImPACT website and accessible by each respective athletic trainer in charge of the designated sport. C3 baseline results will be maintained online and accessible as well.

Baseline Sideline Concussion Evaluation Protocol

The immediate (sideline, on-field, locker room, etc.) evaluation of concussion has been described as a challenge given the variability of concussion presentation, difficulty in making a timely diagnosis, poor specificity and sensitivity of current assessment measures, and an over-reliance on subjective symptom reporting from the student-athlete [21]. Measures such as the SCAT 3, SAC, and King-Devick test have all been utilized as an acute sideline concussion evaluation, however all three of these measures have inherent weaknesses. Given the collegiate athletic demands for a brief and accurate sideline concussion measure, The Florida State University-Sports Medicine Department have implemented a sideline concussion evaluation tool provided in Appendix B. Baseline sideline evaluation testing will provide a comparison on an individual student-athlete basis following a suspected injury. The tool will serve as brief measure to determine whether or not a student-athlete has sustained a concussion.

Baseline Sideline Concussion Evaluation Procedures

1. ALL incoming student-athlete will undergo baseline evaluation with the sideline concussion evaluation prior to the beginning of their eligibility at Florida State University.
2. The tool utilized by The Florida State University-Sports Medicine Department to assess for concussion will be the sideline concussion evaluation provided in Appendix B.
3. All baseline results will be given to the respective athletic trainer in charge of the designated sport. Baseline sideline concussion evaluation results are to be kept on file as well as in a travel folder for away competition. If possible, baseline data will be entered into injury tracking software.

Preseason Concussion Education

Team physicians, athletic director, ALL student-athletes, coaches, and graduate assistant coaches will be provided multiple options for concussion education prior to participation in any practice or competition. Decisions may be made on a team-by-team basis at the discretion of the coaching staff of the designated sports and athletic trainer responsible for the designated sport. Preseason concussion education options may include one or more of the following; attending an educational seminar conducted by a medical provider with specific knowledge of concussion (diagnosis, assessment, treatment, and management), reviewing the NCAA Concussion Fact Sheet, and/or attending a viewing of an NCAA approved film on concussion awareness. All team physicians, athletic directors, student-athletes, coaches, and graduate assistant coaches will be provided one or more of the previous options listed to satisfy the NCAA requirements for preseason concussion education.

Preseason Concussion Education Procedures (Student-Athlete)

1. Each student-athlete will be provided an opportunity to attend an educational seminar on concussion or view a concussion education film.
2. Each year EVERY student athlete will be educated with the NCAA “Concussion Fact Sheet for Student Athletes” provided in Appendix C.
3. Each student-athlete will read the fact sheet and sign a statement provided in Appendix D confirming they accept the responsibility for reporting their injuries and illnesses to The Florida State University medical staff, including signs and symptoms of concussions.

Preseason Concussion Education Procedures (Team Physicians, Athletic Directors, Coaches/Graduate Assistant Coaches)

1. Each year team physicians, athletic directors, and every coach and graduate assistant coach will be provided an opportunity to attend an educational seminar on concussion or view a concussion education film.
2. Each year every coach and graduate assistant coach will be educated with the NCAA “Concussion Fact Sheet for Student Athletes” provided in Appendix E.

Each team physician, athletic director, coach and graduate assistant coach will read the fact sheet and will sign a statement provided in Appendix F confirming that the information on concussions was presented and they understand their role in these policies and procedures.

Post-Injury Plan & Procedures

On-Field Management

On-field management related to head and cervical injuries should always be directed by a Florida State University team physician when present. Certified athletic trainers, emergency medical staff (EMTs), and other team medical designees should defer to medical management directives provided by designated Florida State University team physicians. In the case of a Florida State University team physician being absent, the certified athletic trainer responsible for the injured student-athlete should direct injury management with the assistance of emergency medical staff when present.

On-Field Management Procedures

1. Medical personnel with training in the diagnosis, treatment, and initial management of acute concussion will be present at all NCAA varsity competitions in the following contact/collision sports: basketball, baseball, football, pole vault, soccer, softball. 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.
2. Medical personnel with training in the diagnosis, treatment, and initial management of acute concussion will be available at all NCAA varsity practices in the following contact/collision sports: basketball, baseball, football, pole vault, soccer, softball. To be available means that, at a minimum, medical personnel can be contacted at any time during practice via telephone, messaging, email, beeper, or other immediate communication means. Further, the case can be discussed through such communication, and immediate arrangements can be made for the athlete to be evaluated.
3. The initial step in the management of a collapsed student-athlete should be an assessment of the student-athlete's airway, breathing, and heart function (circulation).
4. This should be followed by a physical examination to rule out a cervical spine injury.
 - a. If a cervical spine injury cannot be ruled out, neck immobilization and immediate transfer to an emergency department capable of advanced neuroimaging and management of cervical trauma should occur.
5. This should be followed by a physical examination to rule out more severe brain injury.
 - a. If more severe brain injury cannot be ruled out, emergency transfer to an emergency department should also occur. Signs of more severe brain injury include; deteriorating mental status, focal neurological findings, abnormal or unequal pupil reaction, abnormalities with extra-ocular movements (upbeat nystagmus), and/or worsening of symptoms. The Glasgow-Coma Scale <13 guidelines will be followed.

6. If a cervical spine injury and/or more severe brain injury can be ruled out with a physical examination, then an on-site evaluation may be initiated.

On-Site Evaluation and Management

Any student-athlete suspected of having sustained a concussion should be immediately removed from play and evaluated by a licensed medical provider trained in the diagnosis and management of concussion. It is important to utilize a standardized approach which takes into account cognition, signs of concussion, symptoms of concussion, and vestibular –ocular functioning.

On-Site Evaluation and Management Procedures

1. Student-athlete showing any signs, symptoms or behaviors consistent with a concussion will be removed from practice or competition and evaluated by an athletics healthcare provider with experience in the evaluation and management of a concussion.
2. The student-athlete will be escorted to a safe location (sideline, locker room, or other on-site facility) by an ATC, team physician, and/or designee for further evaluation.
3. The student-athlete will undergo a concussion evaluation by the athletics healthcare provider with concussion experience (ATC, team physician, and/or designee) utilizing cognitive, vestibular/balance, and ocular screening measures. The Glasgow-Coma scale <13, BESS, and or King-Devick Test will be used on a case by case basis.
4. The student-athlete's performance on evaluation measures will be compared with baseline data (if available) to provide increased accuracy in concussion diagnosis.
5. A collaborative decision will be made by the ATC, team physician, and/or designee regarding the diagnosis of concussion and whether a removal from play decision will be made. If a disagreement exists between the ATC, team physician, and/or designee, all final decisions will be made by the team physician.
 - a. In the event that the ATC and/or designee believe that the student-athlete and has sustained a concussion and the team physician does not believe the student-athlete has sustained a concussion, an open discussion should occur with all parties reviewing concussion related data including; risk factors, immediate signs, immediate symptoms, Sideline Concussion Evaluation results, and any other pertinent information related to the suspected injury. After this discussion has occurred, the diagnosis of concussion remains a medical decision and the determination of whether a student-athlete has or has not sustained a concussion will be made by the team physician.
 - b. In the event that the team physician believes the student-athlete has sustained a concussion and the ATC and/or designee does not believe the student-athlete has sustained a concussion, an open discussion and review of the data mentioned above should occur. After this discussion has occurred, the diagnosis of concussion remains a medical decision and the determination of whether a student-athlete has or has not sustained a concussion will be made by the team physician.
 - i. If the ATC, team physician, and/or designee determine the student-athlete has not sustained a concussion following evaluation and a concussion has not been diagnosed by the team physician, the student-athlete will be permitted to return to play.
 - ii. If the ATC, team physician, and/or designee determine the student-athlete has sustained a concussion following evaluation, the student-athlete will be diagnosed with a concussion and not permitted to return to play or competition on the same day that the initial injury was sustained.
6. The ATC responsible for the student-athlete will be responsible for informing the coaching staff that the student-athlete has sustained a concussion and will not be permitted to return to play as soon as possible.
7. After removal from play has occurred, the student-athlete will be monitored by the ATC, team physician, and/or designee to assess any changes in presentation or functioning and determine if further interventions are necessary.

8. The student-athlete and an individual that lives with the student-athlete will be given specific instructions in the care of the student-athlete's injury. If the student-athlete lives alone, there will be a staff ATC, graduate assistant ATC, and/or another teammate assigned to monitor the student-athlete's status overnight. The person responsible for the student-athlete will be given a concussion take home sheet provided in Appendix G with directions to follow.

Follow-Up Procedures

1. Within 72 hours following the injury, the student-athlete will undergo a clinical evaluation by the team physician and/or designee. The clinical concussion evaluation may consist of any or all of the following; cognitive testing (C3 Logix), symptom assessment, vestibular-ocular functioning, balance (Natus Balance and Mobility DVA/GST), and/or any other assessment measures deemed necessary by the team physician and/or designee.
2. The team physician and/or designee will provide the athlete and ATC responsible for the student-athlete with a treatment plan consisting of physical exertion tolerance, academic/cognitive tolerance, medications (if necessary), physical therapy recommendations, a future evaluation timeline, and/or any other interventions deemed necessary by the team physician and/or designee.
3. The ATC assigned responsible for the student-athlete will be responsible for contacting “Student Academic Services” and notifying them that the student-athlete may have academic difficulties following concussion. A recommendation from the team physician and/or designee to the ATC responsible for the student-athlete will be made regarding class attendance.
4. The team physician and/or designee will provide recommendations to the ATC responsible for the student-athlete regarding a physical exertion progression and allotted physical exertion that the student-athlete will be able to tolerate. The Florida State University-Sports Medicine Concussion Exertion Program is provided in Appendix H.

Post-Injury General Guidelines

All of the steps provided in the Post-Injury Plan and Procedures need to be properly documented and stored into Injury Zone.

All papers need to be signed by the student-athlete and the certified ATC responsible for the injured student-athlete.

Guidelines and clinical experience with concussion by the ATC, team physician, and/or designee will be considered when making a concussion:

- Diagnosis
- Removal from play decision
- Return to play decision
- Clinical recommendations (medication, physical therapy, etc.)
- Physical exertion progression
- Academic/cognitive exertion progression

The goal in managing student-athletes that have sustained a concussion is to prevent a catastrophic outcome and to return the student-athlete to competition in a manner that minimizes the possibility of more severe head injury, while minimizing the amount of time lost from competition.

ALL student-athletes with a protracted (> 21 days) recovery times will undergo an evaluation with team physician.

Return-to-Learn

1. Joshua Chatman, ATC Assistant Athletic Trainer (Football) is the point person when it comes to matters of the Florida State University-Sports Medicine Concussion and mTBI Management Plan.
2. The concussion multi-disciplinary team consists of but is not limited to the following individuals: Dr. Kris Stowers, MD (team physician); Dr. Scott Burkhart, PsyD (Consultant); Joshua Chatman, ATC (point ATC with concussions); Dr. Pamela Perrew, PhD (faculty athletic representative) Cheryl Pfeil, ATC (Sports Medicine Staff); the Student-Athletic Academic Services staff; staff athletic trainers for each sport; head and assistant coaches for each sport; FSU Athletic Department psychologist consultants will also be made available when needed.
3. Upon diagnosis of a concussion a letter will be provided to the student-athlete's academic advisor in Student-Athletic Academic Services (SAAS).
 - a. The student-athlete will be removed from ALL classroom activity on the day of mTBI onset.
 - b. The academic advisor will provide this letter to the student-athlete to be provided to professors, counselors and tutors.
 - c. The letter will state the name of the student-athlete, date of onset, definition of concussion, concussion education including signs and symptoms, date of follow-up appointment for student-athlete with team physicians, and any recommendations for academic accommodations.
 - d. After each follow-up appointment a new letter will be provided to the student-athlete's academic advisor from SAAS. The letter will provide an up-to-date individualized initial plan that outlines recommendations for academic accommodations including but not limited to:
 - i. Class attendance recommendations
 - ii. Gradual return to classroom/studying as tolerated by symptoms
 - iii. Possibly extending time requirements for completion of assignments, quizzes and/or exams.
 - iv. Accommodations will be requested for a period of up to two weeks.
 - v. For those individuals who encounter symptom duration lasting longer than two-weeks, a follow-up with the appropriate members of the multi-disciplinary team will be arranged.
4. The Florida State University-Sports Medicine Concussion and mTBI Management Plan is implemented in accordance to the Americans with Disabilities Act Amendments Act of 2008.
 - a. Campus resources will be utilized in accordance with the ADAAA when needed. These include but are not limited to:
 - i. Learning specialists
 - ii. Office of disability services
 - iii. ADAAA office

Return to Play:

The Florida State University-Sports Medicine Concussion mTBI Management Plan takes an active and safe approach in the return to play progression of every FSU student-athlete. A step-wise process will be followed in the Exertional Progression Protocol.

1. Upon clearance from team physician and/or his designee the process to return to play will be initiated as tolerated.
2. As symptoms allow patient will be allowed to return to begin activity in a quiet environment, non-contact, limit head/neck movement and position change, limit cognitive demand. If tolerated the next step will be:
3. Exercise in normal gym environment, allow for minor positional changes and head/neck movements, minor cognitive demand (counting exertion reps). If symptoms do not return:
4. Indoor/Outdoor training, initiate strength/conditioning, and dynamic balance exercises. Increased cognitive demand (visual demand).
5. Return to sport specific practice/training, non-contact
6. Simulated contact in practice training settings with full activity.

Reducing Exposure to Head Trauma:

1. The Florida State University-Sports Medicine Concussion and mTBI Management Plan utilizes education to emphasize curtailing of gratuitous head trauma and it adheres to the following:
 - a. Inter-Association Consensus: Year-Round Football Practice Contact Guidelines
 - b. Inter –Association Consensus: Independent Medical Care Guidelines
2. Emphasis is placed on proper technique education to both the coach and player.
 - a. A safety first approach to sport should be taken
 - b. Remove the head from contact as much as possible
3. It is recommended that during athletic practices full-contact be limited.
 - a. Improper technique criticized and corrected.
 - b. Sound technique be encouraged and positively reinforced.

Concussion and head trauma is an inherent risk to sport but every attempt should be made to decrease the number of sub-concussive forces endured by the student-athlete. Every measure should be taken to ensure that the sever-intensity head impacts endured by the participating student-athlete are limited to competition.

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Appendix

Florida State University-Sports Medicine Department

Concussion Risk Factors Questionnaire

Demographics

| | |
|----------------|--|
| Name: | |
| Age: | |
| Date of Birth: | |
| Position: | |

Relevant History

| | Y=Yes | N=No | DK=Don't Know | | | | | | | | |
|----------------------------------------------------------------------------------------------|-------|------|---------------|----|---|---|---|---|---|---|-----|
| 1. Have you ever been diagnosed with a concussion? <i>If no, skip to Question 5.</i> | | Y | N | DK | | | | | | | |
| 2. If yes to Question 1, how many times? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 3. If yes to Question 1, how many times did you lose consciousness? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 4. If yes to Question 1, how many times did you have memory problems following a concussion? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 5. Do you have a history of migraine headaches? | | Y | N | DK | | | | | | | |
| 6. Does anyone in your family have a history of migraine headaches? | | Y | N | DK | | | | | | | |
| 7. Do you have a history of car sickness or motion sickness? | | Y | N | DK | | | | | | | |
| 8. Does anyone in your family have a history of motion sickness? | | Y | N | DK | | | | | | | |
| 9. Do you have a history of seizures or epilepsy? | | Y | N | DK | | | | | | | |
| 10. Does anyone in your family have a history of seizures or epilepsy? | | Y | N | DK | | | | | | | |

Appendix

Florida State University-Sports Medicine Department

| | | | |
|---------------------------------------------------------------------------------------------------------------------|---|---|----|
| 11. Do you have a history of lazy eye or cross eye? | Y | N | DK |
| 12. Does anyone in your family have a history of lazy eye or cross eye? | Y | N | DK |
| 13. Do you have a history of ADD or ADHD/ | Y | N | DK |
| 14. Did you ever take medication for ADD or ADHD? | Y | N | DK |
| 15. Are you currently taking medication for ADD or ADHD? | Y | N | DK |
| 16. Does anyone in your family have a history of ADD or ADHD? | Y | N | DK |
| 17. Were you ever placed on an IEP or 504 Plan in school for a diagnosed learning disability? | Y | N | DK |
| 18. Has anyone in your family ever been placed on an IEP or 504 Plan in school for a diagnosed learning disability? | Y | N | DK |
| 19. Have you ever been diagnosed with a psychological condition (Anxiety, etc.)? | Y | N | DK |
| 20. Did you ever take medication for a psychological condition? | Y | N | DK |
| 21. Are you currently taking medication for a psychological condition? | Y | N | DK |
| 22. Has anyone in your family ever been diagnosed with a psychological condition? | Y | N | DK |

Sideline Concussion Evaluation (SCE)

General On-Field Management Guidelines

1. The initial step in the management of a collapsed athlete should be an assessment of the athlete's airway, breathing, and cardiac functioning (circulation).
2. This should be followed by a physical examination to rule out any severe cervical spine injury.
 - a. If a cervical spine injury cannot be ruled out, neck immobilization and immediate transfer to an emergency department capable of advanced neuroimaging and management of cervical trauma should occur.
3. This should be followed by a physical examination to rule out more severe brain injury.
 - a. If more severe brain injury cannot be ruled out, emergency transfer to an emergency department should also occur. Signs of more severe brain injury include; deteriorating mental status, focal neurological findings, abnormal or unequal pupil reaction, abnormalities with extra-ocular movements (upbeat nystagmus), and/or worsening of symptoms.
4. If a cervical spine injury and/or more severe brain injury can be ruled out with a physical examination, then an on-site evaluation of concussion may be initiated.
5. Any athlete suspected of having sustained a concussion should be immediately removed from play as early as feasible with the safety of the athlete in mind, and evaluated by a licensed medical provider trained in the diagnosis and management of concussions.

Definition of Concussion

The Berlin 2016 Consensus Statement provides the following definition of sport related concussion. **Sport related concussion (SRC)** is a traumatic brain injury induced by biomechanical forces. Several common features that may be utilized in clinically defining the nature of a concussive head injury include:

5. SRC may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an impulsive force transmitted to the head.
6. SRC typically results in rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours.
7. 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.
8. 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.

The clinical signs and symptoms cannot be explained by drug, alcohol, or medication use, other injuries (such as cervical injuries, peripheral vestibular dysfunction, etc) or comorbidities (eg, psychological factors or coexisting medical conditions).

Challenges of Sideline Concussion Assessment

The immediate (sideline, on-field, locker room, etc.) evaluation of concussion has been described as a challenge given the variability of concussion presentation, difficulty in making a timely diagnosis, poor specificity and sensitivity of current assessment measures, and an over-reliance on subjective symptom reporting from the student-athlete [3].

Current Sideline Concussion Assessment Measures Available

Abbreviated testing measures are intended for quick and accurate concussion screening for on-site use following a suspected concussion and are not intended to replace a comprehensive clinical evaluation. On-site measures for concussion screening should also not be used as a stand-alone tool for the continued management of sports concussion.

| | Domains Tested | Duration | Administrator | Recommended for Baseline | Recommended for Post-Injury Management |
|--------------------------|----------------------------------------------------------------------------|-----------------|-------------------------------------|---------------------------------|-----------------------------------------------|
| NFL Sideline Tool | Signs/symptoms, neuro/cervical, orientation, memory, concentration, & BESS | 10-12 minutes | ATC & MD | Yes | No |
| SCAT | Symptoms, GCS, orientation, memory, BESS, cervical, coordination | 12-15 minutes | ATC, MD, Neuropsych, & Coach | Yes | No |
| SAC | Orientation, memory, exertion maneuvers, neuro exam, & concentration | 5-7 minutes | ATC, MD, Neuropsych, & Coach | Yes | No |
| King-Devick | Saccadic tracking, attention, & language | 2 minutes | ATC, MD, Neuropsych Parent, & Coach | Yes | Yes |
| BESS | Balance | 5 minutes | ATC & MD | Yes | Yes |

Limitations of Current Sideline Measures Available

Orientation questions (date, place, time, etc.) have shown to be unreliable in the sports setting when compared to memory assessment [4, 5]. Balance testing and modified BESS scoring is a specific indicator of balance disturbance and possible indicator of concussion, but lacks sensitivity and inter-relator reliability [6]. The King-Devick test has been utilized as a sideline evaluation of concussion to monitor changes in eye tracking from baseline functioning [7-12]. However, the King-Devick test is an assessment of eye tracking and saccadic eye movement and may not be a comprehensive assessment of concussion. Athlete symptom reporting following a concussion may not be a reliable source of information given as few as 30% of athletes report their symptoms after sustaining a concussion resulting in a large number of undiagnosed concussions [13].

Benefits of Current Sideline Measures Available

Brief neuropsychological test batteries to assess cognitive domains such as; attention, concentration, and memory have been shown to be practical and effective in concussion evaluation. These tests

include the SCAT 3 [14] and SAC [15-17]. Military studies have suggested the need to implement the assessment of saccadic eye tracking and eye pursuit movements with soldiers who sustain blast and non-blast related TBI [18] similar to domains assessed with the King-Devick Test.

Vestibular-Ocular Dysfunction Post-Concussion

Some dizziness following a concussion may be due to labyrinth causes (vertigo/BPPV) and non-labyrinth causes. Non-labyrinth causes may be the result of structural or micro structural central nervous system injury or more complicated interactions between migraine and anxiety [19]. Military studies of blast related mTBI have encouraged the assessment of; near point convergence, saccades, and eye pursuit movements [18]. When gaze stability testing, vestibular-ocular reflex testing, and convergence testing are combined, results indicate 89% accuracy of identifying patients with concussion [20]. Vestibular-ocular motor screening (VOMS) assessment may be a complimentary tool to balance testing [20]. Provocation of symptoms during VOMS assessment may represent useful cut-offs in the assessment of concussion [20].

A Case for Something New

The ideal sideline concussion measure should include; attention, concentration, memory, vestibular, and ocular assessment. Further, symptom reporting associated with sideline concussion assessment may be beneficial when based on clinically significant cut-offs and specific to provocation or increase during sideline assessment. An ideal sideline concussion assessment tool should have baseline utility, acute (sideline) utility, and be clinically relevant to follow-up treatment and injury management.

Sideline Concussion Evaluation (SCE)

The SCE was created as a brief (under 5 minutes), comprehensive, and accurate evaluation for on-site and sideline assessment of concussion in sport. The SCE integrates cognitive, vestibular, and ocular (including saccadic eye movement) testing. More specifically, the following domains of functioning are assessed; concentration, attention, immediate memory, saccadic eye functioning, gaze stability testing, vestibular ocular reflex cancellation, convergence, and recall memory. Symptoms reported are specific to clinically significant cut-off scores that have been empirically validated.

The SCE has utility as a baseline measure, acute (sideline) measure, and is based on assessment measures consistent with a comprehensive clinical concussion evaluation. The SCE utilizes vestibular and ocular motor screening measures that have been validated to differentiate from healthy controls. Further, vestibular and ocular motor screening included in the SCE is an objective clinical test and relatively devoid of athlete manipulation.

The SCE has been created for the utilization of ATCs, MDs, and medical personnel affiliated with collegiate and professional sports teams who have undergone specific training on how to properly use the SCE.

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Appendix B: Sideline Concussion Evaluation

A

1. Concentration

Repeat the months of the year backwards starting with the current month. (*Dec, Nov, Oct, Sep, Aug, Jul, Jun, May, Apr, Mar, Feb, Jan*)

- 2. Attention** (*Say the digits, ideally one digit per second. Ask the student-athlete to wait to repeat the digits until you have completed the entire sequence of digits. Then have the student-repeat the digits back to you. All 4 trials of forwards digits, then all 4 backward digits*)

| | | | | |
|-----------|-----------|---------------|-------------------|-----------|
| Forwards | 2-7 | 3-9-4 | 8-1-6-2 | 5-9-7-4-3 |
| Backwards | 5-9 (9-5) | 8-3-6 (6-3-8) | 1-9-4-7 (7-4-9-1) | |

- 3. Immediate Memory** (*Choose one of the lists, say each of the words once, then have the student-athlete repeat the list back to you*).

| | | | |
|--------|----------|--------|----------|
| List 1 | Tractor | Carrot | Necklace |
| List 2 | Airplane | Onion | Pendant |

4. Vestibular Functioning

| | | |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Gaze Stability [Horizontal] | Eyes fixed on the thumb, move the head back and forth as if the student athlete is saying “no”, continue for 15 seconds. | Upon completion of the exercise, ask the student-athlete if they are feeling any increase in dizziness or fogginess. [Rate 0-10] |
| Gaze Stability [Vertical] | Eyes fixed on the thumb, move the head up and down as if the student-athlete is saying yes. continue for 15 seconds. | Upon completion of the exercise, ask the student-athlete if they are feeling any increase in dizziness or fogginess. [Rate 0-10] |
| Vestibular Ocular Reflex Cancellation | Arm extended, thumb up, rotate the upper body 180 degrees keeping the eyes focused on the thumb. | Look for observable difficulty tracking the thumb as the student-athlete rotates their upper body. [Rate 0-10] |

5. Ocular Functioning

| | | |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H-Test | Fixation stick, focus on the red dot, head still. ATC moves the stick in an “H” pattern as the student-athlete follows. | Look for provoked nystagmus or shaking of the eyes. The student-athlete may squint/rub eyes upon completion of the task. |
| Saccades [Horizontal] | ATC holds both index fingers laterally, shoulder width apart. Head still, student-athlete moves eyes back and forth for 10 seconds. | Look for provoked nystagmus or shaking of the eyes. The student-athlete may squint/rub eyes upon completion of the task. Count the number of times the target is hit in 10 seconds. |
| Saccades [Vertical] | ATC holds both index fingers vertically, shoulder width apart. Head still, student-athlete moves eyes back and forth for 10 seconds. | Look for provoked nystagmus or shaking of the eyes. The student-athlete may squint/rub eyes upon completion of the task. Count the number of times the target is hit in 10 seconds. |
| Convergence | Fixation stick, focus on the white dot, ask the student-athlete to report when they see 2 white dots. | Look for an exophoria (one eye deviating away from the nose) or isophoria (one eye deviating towards the nose) when the student-athlete sees 2 dots. [Anything over 10cm is abnormal] |

- 6. Delayed Memory** (*Ask the student-athlete to recall all words from the designated list from Immediate Memory task*).

ANY POSITIVE FINDINGS OR INCORRECT RESPONSE IS INDICATIVE OF CONCUSSION AND PRECLUDES RETURN TO PLAY.

Appendix B: Sideline Concussion Evaluation

A

Loss of Consciousness (LOC): LOC may be an indicator of severity of injury. LOC for a few seconds to a few minutes is likely indicative of concussion/mTBI. Prolonged LOC which occurs for several minutes to hours is likely indicative of more severe traumatic brain injury and should receive immediate emergency medical attention.

Seek immediate emergency medical attention if the following signs are observed:

| | | |
|-------------------------------------|---------------------------------|-----------------------------------|
| Repeated Vomiting | Severe Disorientation/Confusion | One Large Pupil/One Small Pupil |
| Slurred Speech | Combative/Unusual Behavior | Loss of Coordination |
| Clear Fluid Draining from Ears/Nose | Convulsions/Seizures | Weakness/Numbness in Fingers/Toes |

Common Observable Signs of Concussion:

| | | |
|------------------------------------------------|--------------------------------------|---------------------------------|
| Appears Dazed/Stunned | Confusion About Plays/Assignments | Loss of Consciousness |
| Forgets Events Before the Trauma | Forgets Events After the Trauma | “Fencing”/Seizure Response |
| Vomiting | Moves Clumsily | Loses Balance |
| Eye Rubbing/Squinting/Attempts to Clear Vision | Holding of the Head Following Trauma | Makes Uncharacteristic Mistakes |
| Shaking of the Head to Clear Vision | Appears Foggy/In a Haze | Behavior/Personality Change |

Common Symptoms of Concussion:

| | | |
|------------------------|-----------------------|-------------------------------------|
| Pressure Base Headache | Sensitivity to Light | Sensitivity to Noise |
| Nausea | Dizziness | Visual Aura (sees different colors) |
| Blurry Vision | Double Vision | Black/White Vision |
| Fogginess | Feeling “Slowed Down” | Not feeling “Right”/”Off” |
| Problems Concentrating | Problems Remembering | Balance Problems |
| Fatigue | Drowsiness | Feeling “More Emotional” |
| Irritability | Numbness or Tingling | Sadness/Nervousness |

General Concussion Management Guidelines:

- Any positive findings during the Sideline Concussion Evaluation (SCE) are indicative of a concussion diagnosis and the student-athlete should immediately be removed from play and not return to activity until evaluated by a team physician or designated medical professional trained in concussion treatment and management.
- Any student-athlete diagnosed with a concussion is not to return to competition on the same day.
- Observable signs of concussion witnessed by a member of the Florida State University Sports Medicine Staff should be interpreted as a possible concussion and the student-athlete should be evaluated using the Sideline Concussion Evaluation (SCE) as soon as feasible.

ANY POSITIVE FINDINGS OR INCORRECT RESPONSE IS INDICATIVE OF CONCUSSION AND PRECLUDES RETURN TO PLAY.

CONCUSSION

A FACT SHEET FOR STUDENT-ATHLETES

WHAT IS A CONCUSSION?

A concussion is a brain injury that:

- Is caused by a blow to the head or body.
 - From contact with another player, hitting a hard surface such as the ground, ice or floor, or being hit by a piece of equipment such as a bat, lacrosse stick or field hockey ball.
- Can change the way your brain normally works.
- Can range from mild to severe.
- Presents itself differently for each athlete.
- Can occur during practice or competition in ANY sport.
- Can happen even if you do not lose consciousness.

HOW CAN I PREVENT A CONCUSSION?

Basic steps you can take to protect yourself from concussion:

- Do not initiate contact with your head or helmet. You can still get a concussion if you are wearing a helmet.
- Avoid striking an opponent in the head. Undercutting, flying elbows, stepping on a head, checking an unprotected opponent, and sticks to the head all cause concussions.
- Follow your athletics department's rule for safety and the rules of the sport.
- Practice good sportmanship at all times.
- Practice and perfect the skill of the sport.

WHAT ARE THE SYMPTOMS OF A CONCUSSION?

You can't see a concussion, but you might notice some of the symptoms right away. Other symptoms can show up hours or days after the injury.

Concussion symptoms include:

- Amnesia.
- Confusion.
- Headache.
- Loss of consciousness.
- Balance problems or dizziness.
- Double or fuzzy vision.
- Sensitivity to light or noise.
- Nausea (feeling that you might vomit).
- Feeling sluggish, foggy or groggy.
- Feeling unusually irritable.
- Concentration or memory problems (forgetting game play, fact, meeting time).
- Slowed reaction time.

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

WHAT SHOULD I DO IF I THINK I HAVE A CONCUSSION?

Don't hide it. Tell your athletic trainer and coach. Never ignore a blow to the head. Also, tell your athletic trainer and coach if one of your teammates might have a concussion. Sports have injury timeouts and player substitutions so that you can get checked out.

Report it. Do not return to participation in a game, practice or other activity with symptoms. The sooner you get checked out, the sooner you may be able to return to play.

Get checked out. Your team physician, athletic trainer, or health care professional 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 concussions can cause permanent brain damage, and even death. Severe brain injury can change your whole life.



ANY POSITIVE FINDINGS OR INCORRECT RESPONSE IS IN PLAY

CLUDGE

IT'S BETTER TO MISS ONE GAME THAN THE WHOLE SEASON. WHEN IN DOUBT, GET CHECKED OUT.

For more information and resources, visit www.NCAA.org/health-safety and www.CDC.gov/Concussion.



Appendix D Baseline Concussion Evaluation

Florida State University-Sports Medicine Department
Student-Athlete Concussion Statement

Please initial at each line after reading.

____ 1. I have read and understand the NCAA Concussion Fact Sheet.

____ 2. I understand that it is my responsibility to report all signs and symptoms of a possible concussion to my athletic trainer and/or team physician.

After reading the NCAA Concussion Fact Sheet, I am aware of the following information:

____ 3. A concussion is a brain injury, which I am responsible for reporting all signs and symptoms of a possible concussion to my athletic trainer and/or team physician.

____ 4. A concussion can affect my ability to perform everyday activities, and affect reaction time, balance, sleep, and classroom performance.

____ 5. You cannot see a concussion, but you might notice some of the symptoms right away. Other symptoms can show up hours or days after the injury.

____ 6. If I suspect a teammate has a concussion, I am responsible for reporting the injury to my athletic trainer and/or team physician.

____ 7. I will not return to competition or practice if I have sustained a blow to the head or body that results in concussion-related symptoms.

____ 8. Following a concussion, the brain needs time to heal. You are more likely to have a repeat concussion if you return to play before your symptoms resolve.

____ 9. In rare cases, repeat concussions can cause permanent brain damage and even death.

Student-Athlete Signature
PLAY.

Date

Printed Student-Athlete Name

CONCUSSION

A FACT SHEET FOR COACHES

THE FACTS

- A concussion is a brain injury.
- All concussions are serious.
- Concussions can occur without loss of consciousness or other obvious signs.
- Concussions can occur from blows to the body as well as to the head
- Concussions can occur in *any* sport.
- Recognition and proper response to concussions when they first occur can help prevent further injury or even death.
- Athletes may not report their symptoms for fear of losing playing time.
- Athletes can still get a concussion even if they are wearing a helmet.
- Data from the NCAA Injury Surveillance System suggests that concussions represent 5 to 18 percent of all reported injuries, depending on the sport.

WHAT IS A CONCUSSION?

A concussion is a brain injury that may be caused by a blow to the head, face, neck or elsewhere on the body with an "impulsive" force transmitted to the head. Concussions can also result from hitting a hard surface such as the ground, ice or floor, from players colliding with each other or being hit by a piece of equipment such as a bat, lacrosse stick or field hockey ball.

RECOGNIZING A POSSIBLE CONCUSSION

To help recognize a concussion, watch for the following two events among your student-athletes during both games and practices:

1. A forceful blow to the head or body that results in rapid movement of the head;
- AND -
2. Any change in the student-athlete's behavior, thinking or physical functioning (see signs and symptoms).

SIGNS AND SYMPTOMS

Signs Observed By Coaching Staff

- Appears dazed or stunned.
- Is confused about assignment or position.
- Forgets plays.
- Is unsure of game, score or opponent.
- Moves clumsily.
- Answers questions slowly.
- Loses consciousness (even briefly).
- Shows behavior or personality changes.
- Can't recall events before hit or fall.
- Can't recall events after hit or fall.

Symptoms Reported By Student-Athlete

- Headache or "pressure" in head.
- Nausea or vomiting.
- Balance problems or dizziness.
- Double or blurry vision.
- Sensitivity to light.
- Sensitivity to noise.
- Feeling sluggish, hazy, foggy or groggy.
- Concentration or memory problems.
- Confusion.
- Does not "feel right."

ANY POSITIVE FINDINGS OR INCORRECT RESPONSE IS INDICATIVE OF CONCUSSION AND PRECLUDES PLAY.



Appendix B: Sideline Concussion Evaluation

A

PREVENTION AND PREPARATION

As a coach, you play a key role in preventing concussion and responding to them properly when they occur. Here are some steps you can take to ensure the best outcome for your student-athlete:

- Educate student-athletes and coaching staff about concussion. Explain your concern about concussion and your expectations of safe play to student-athletes, athletics staff and assistant coaches. Create an environment that supports reporting, access to proper evaluation and conservative return-to-play.
 - Review and practice your emergency action plan for your facility.
 - Know when you will have sideline medical care and when you will not, both at home and away.
 - Emphasize that protective equipment should fit properly, be well maintained, and be worn consistently and correctly.
 - Review the Concussion Fact Sheet for Student-Athletes with your team to help them recognize the signs of a concussion.
 - Review with your athletic staff the NCAA Sports Medicine Handbook guideline: Concussion or Mild Traumatic Brain Injury (mTBI) in the Athlete.
- Insist that safety comes first.
 - Teach student-athletes safe-play techniques and encourage them to follow the rules of play.
 - Encourage student-athletes to practice good sportsmanship at all times.
 - Encourage student-athletes to immediately report symptoms of concussion.
- Prevent long-term problems. A repeat concussion that occurs before the brain recovers from the previous one (hours, days or weeks) can slow recovery or increase the likelihood of having long-term problems. In rare cases, repeat concussion can result in brain swelling, permanent brain damage and even death.

IF YOU THINK YOUR STUDENT-ATHLETE HAS SUSTAINED A CONCUSSION:

Take him/her out of play immediately and allow adequate time for evaluation by a health care professional experienced in evaluating for concussion.

An athlete who exhibits signs, symptoms or behaviors consistent with a concussion, either at rest or during exertion, should be removed immediately from practice or competition and should not return to play until cleared by an appropriate health care professional. Sports have injury timeouts and player substitutions so that student-athletes can get checked out.



IF A CONCUSSION IS SUSPECTED:

1. Remove the student-athlete from play. Look for the signs and symptom of concussion if your student-athlete has experienced a blow to the head. Do not allow the student-athlete to just "shake it off." Each individual athlete will respond to concussions differently.

2. Ensure that the student-athlete is evaluated right away by an appropriate health care professional. Do not try to judge the severity of the injury yourself. Immediately refer the student-athlete to the appropriate athletics medical staff, such as a certified athletic trainer, team physician or health care professional experienced in concussion evaluation and management.

3. Allow the student-athlete to return to play only with permission from a health care professional with experience in evaluating for concussion. Allow athletics medical staff to rely on their clinical skill and protocol in evaluating the athlete to establish the appropriate time to return to play. A return-to-play progression should occur in an individualized, step-wise fashion with gradual increments in physical exertion and risk of contact.

4. Develop a game plan. Student-athletes should not return to play until a physician has examined them at rest and during exertion. Many times, that means they will be out for the remainder of that day. In fact, a concussion management

RESPONSE IS INDICATIVE OF CONCUSSION AND PRECLUDES

continues to evolve with new science, the care is becoming more conservative and return-to-play time frames are getting longer. Coaches should have a game plan that accounts for this change.

**IT'S BETTER THEY MISS ONE GAME THAN THE WHOLE SEASON.
WHEN IN DOUBT, SIT THEM OUT.**

for more information and resources, visit www.NCAA.org/health-safety and www.CDC.gov/Concussion.

Appendix B: Sideline Concussion Evaluation

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Referent to any commercial entity or product or service on this page should not be construed as an endorsement by the Government of the company or its products or services.

ANY POSITIVE FINDINGS OR INCORRECT RESPONSE IS INDICATIVE OF CONCUSSION AND PRECLUDES PLAY.

Appendix F Baseline Concussion Evaluation

Florida State University-Sports Medicine Department
Coach/Graduate Assistant Coach Concussion Statement

Please initial at each line after reading.

____ 1. I have read and understand the NCAA Concussion Fact Sheet.

____ 2. I understand that it is my responsibility to report all signs and symptoms of a possible concussion that occurs to any of my student-athletes to my athletic trainer and/or team physician.

After reading the NCAA Concussion Fact Sheet, I am aware of the following information:

____ 3. A concussion is a brain injury, which I am responsible for reporting all signs and symptoms of a possible concussion that occurs to my student-athletes to my student-athlete's athletic trainer and/or team physician.

____ 4. A concussion can affect my student-athlete's ability to perform everyday activities, and affect reaction time, balance, sleep, and classroom performance.

____ 5. I cannot see a concussion, but I may notice some of the symptoms that affect my student-athlete right away. Other symptoms can show up in my student-athlete hours or days after the injury and I will report them to the athletic trainer and/or team physician immediately as they appear.

____ 6. If I suspect that any of my student-athletes has a concussion, I am responsible for reporting the injury to my athletic trainer and/or team physician.

____ 7. I will not return my student-athlete to competition or practice if they have sustained a blow to the head or body that results in concussion-related symptoms until they are cleared medically.

____ 8. Following a concussion, the brain needs time to heal. A student-athlete can be more likely to have a repeat concussion if they return to play before their symptoms resolve. Resolution of these symptoms may take days or even weeks.

____ 9. In rare cases, repeat concussions can cause permanent brain damage and even death.

~~— ANY POSITIVE FINDINGS OR INCORRECT RESPONSE IS INDICATIVE OF CONCUSSION AND PRECLUDES PLAY.~~

Coach/Graduate Assistant Signature

Date

Printed Coach/Graduate Assistant Name

Appendix G Baseline Concussion Evaluation

Florida State University – Sports Medicine Department
Care of Patient Not Requiring Hospitalization

General Information

1. Any head injury is potentially dangerous, whether or not the injured person becomes unconscious.
2. The presence or absence of swelling at the site of injury has no bearing on its seriousness. For example, there may be a concussion, but no external positive imaging findings.
3. The real extent of injury can be determined only after careful examination and observation of the patient over a period of time. The first week, especially the first 24-48 hours following the injury are the most important.

Important Points

1. During this period of time it is important that a responsible person be in close contact with the patient and watch carefully for the appearance of possible serious symptoms.
2. _____ is responsible for watching the patient and reporting to the doctor if any of the following symptoms appear. Any sign or symptom noted below should result in the immediate transport of the patient to the emergency room.
 - a. Inability to awaken or arouse the patient or a change in the level of consciousness or personality (most important).
 - b. Repetitive vomiting
 - c. Mental confusion and/or significant disorientation
 - d. Severe headache (e.g. 15/10 headache complaint) that does not go away
 - e. Temperature above 100 degrees Fahrenheit, with or without a stiff neck
 - f. Clear drainage from the ears or nose
 - g. Inability to move arms and legs equally well on both sides, or lack of bilateral strength with fine or gross motor movements
 - h. Convulsions or seizure activity

Instructions

1. Do not give any medication unless cleared by the doctor as this can alter the level of consciousness!!!
2. An ice pack may be placed on the neck to reduce swelling. You may use an ice pack for 24-48 hours for 15-20 minutes at a time.
3. The patient should eat lightly for a day or two. If the patient eats heavily or eats something that doesn't agree the patient might vomit which could be mistaken as a head injury symptom.
4. The patient is not to take narcotics, drink alcohol or use mind-altering substances for several days as this will change the level of consciousness.
5. No loud music, headphones, or loud venues
6. Limit bright lights or extended periods of time in bright sunshine
7. Limited television or video game exposure
8. Limit telephone/computer work use as much as possible
9. No activities that require focus and concentration (e.g. team meetings, watching film, reading)
10. The team physician or designee will use his/her expertise and knowledge in order to excuse the student-athlete from class.

ANY POSITIVE FINDINGS OR INCORRECT RESPONSE IS INDICATIVE OF CONCUSSION AND PRECLUDES PLAY.

Appendix H Baseline Concussion Evaluation

Florida State University-Sports Medicine Department
Concussion Physical Exertion Progression

| Rehabilitation Stage | Rehabilitation Program: Target HR | Rehabilitation Program: Vestibular/Ocular Dysfunction |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Stage 1</p> <p><u>Recommendations:</u> Exercise in a quiet environment, non-contact, limit head/neck movement and position change, limit cognitive demand.</p> | <p><u>Target HR:</u> 30-40% of maximum exertion (Max HR-Rest. HR x.30) + Rest. HR</p> | <p>Stationary bike (15-20 min.).</p> <p>Stationary balance activities.</p> <p>Weight machines, squats, & lunges.</p> <p>Core exercises, no head/neck movement.</p> |
| <p>Stage 2</p> <p><u>Recommendations:</u> Exercise in normal gym environment, allow for minor positional changes and head/neck movements, minor cognitive demand (counting exertion reps).</p> | <p><u>Target HR:</u> 40-60% of maximum exertion (Max HR-Rest. HR x.40) + Rest. HR</p> | <p>Elliptical, treadmill walking/jogging.</p> <p>Stationary balance with head movements.</p> <p>Resistance with head movements (lateral squats with head movement).</p> <p>Low level sports specific activity.</p> <p>Core exercises with head movements (side planks, tuck jumps)</p> |
| <p>Stage 3</p> <p><u>Recommendations:</u> Indoor/Outdoor training, initiate strength/conditioning, and dynamic balance exercises. Increased cognitive demand (visual demand).</p> | <p><u>Target HR:</u> 60-80% of maximum exertion (Max HR-Rest. HR x.60) + Rest. HR</p> | <p>Moderate aerobic exercise, (intervals, stairs).</p> <p>Dynamic movements/positional changes.</p> |
| <p>ANY POSITIVE FINDINGS OR INCORRECT RESPONSE IS INDICATIVE OF CONCUSSION AND PRECLUDES PLAY.</p> | | |
| <p>Stage 4</p> <p><u>Recommendations:</u> Return to sport specific practice/training, non-contact</p> | <p><u>Target HR:</u> 80% of maximum exertion (Max HR-Rest. HR x.80) + Rest. HR</p> | <p>Increased sport specific activity</p> <p>80% maximum exertion with non-contact sports specific activities.</p> |
| <p>Stage 5</p> <p><u>Recommendations:</u> Simulated contact in practice training settings with full activity.</p> | <p><u>Target HR:</u> 100% of maximum exertion with contact (Max HR-Rest. HR x 1) + Rest HR</p> | <p>Full practice/training activity with contact.</p> |