Sports Medicine

# CSU Department of Athletics Concussion Protocol

The following policy and procedures on pre-season education, baseline testing and subsequent assessment and management of concussions, as well as return to play and return to learn guidelines, has been developed in accordance with NCAA guidelines, recommendations, and obligations under the medical monitoring agreement to provide quality healthcare services and assure the well-being of each student-athlete at Colorado State University.

## PURPOSE:

Colorado State University Athletics recognizes that sport induced concussions pose a significant health risk for those student-athletes participating in athletics. With this in mind, Colorado State University, along with the NCAA, has implemented policies and procedures to assess, identify, and manage those student-athletes who have suffered a concussion. It is also recognized that baseline neurocognitive and balance testing can provide important comparison data when performing subsequent serial testing as an ancillary assessment in making return to competition decisions for student athletes participating in collision or contact sports, and/or who have a previous history of concussions prior to participating at CSU. This baseline data along with physical examination, and/or further diagnostic testing, will be used in conjunction to determine when it is safe for a student athlete to return to competition.

## CONCUSSION DEFINITION

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

No abnormality is seen on standard structural neuroimaging studies (computed tomography or magnetic resonance imaging T1- and T2-weighted images), but in the research setting, abnormalities may be present on functional, blood flow or metabolic imaging studies. Sport-related concussion results in a range of clinical symptoms and signs that may or may not involve loss of consciousness. The clinical symptoms and signs of concussion cannot be explained solely by (but may occur concomitantly with) drug, alcohol, or medication use, other injuries (such as cervical injuries, peripheral vestibular dysfunction) or other comorbidities (such as psychological factors or coexisting medical conditions). (Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport: Amsterdam, October 2022)

## INDEPENDENT MEDICAL CARE

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

## SIGNS AND SYMPTOMS OF CONCUSSION

Certified athletic trainers, physicians and other health care professionals need to be aware of the signs and symptoms of concussion to properly recognize and intervene on behalf of the student-athlete. These include, but are not limited to:

| Physical | Cognitive | Emotional | Sleep |
|---|---|---|---|
| Headache | Feeling mentally "foggy" | Irritable | Drowsiness |
| Nausea | Feeling slowed down | Sad | Sleeping more than usual |
| Vomiting | Difficulty concentrating | More emotional | Sleeping less than usual |
| Balance Problems | Difficulty remembering | Nervousness | Difficulty falling asleep |
| Dizziness | Forgetful of recent information and conversations | Personality Change | |
| Fatigue | | | |
| Sensitivity to light | Confused about recent events | | |
| Numbness/tingling | Answers questions slowly | | |
| Dazed | | | |
| Stunned | | | |

American Medical Society for Sports Medicine 2013 Position Stand

## EDUCATION:

All coaches, medical staff, team physicians, athletic trainers, directors of athletics, student-athletes, and other personnel involved in health and safety decision making will have education and/or training appropriate for their position and will be provided the opportunity for discussion. Coaches will receive education on concussion and proper management provided by the sports medicine staff. Medical staff receive annual training on concussion management, emergency action plans specific to Colorado State University athletic venues, and treatment of serious medical conditions common to the athletic setting. Student-athletes will be provided education on concussion during their pre-participation physical exam. All parties will sign an acknowledgement of having read and understood the concussion material. Student-athletes will sign a statement in which they accept the responsibility for reporting their injuries and illnesses to the institutional medical staff, including signs and symptoms of concussions. This will be done annually.

## PRE-PARTICIPATION MANAGEMENT PLAN:

All student-athletes will have a one-time pre-participation baseline concussion assessment, to be used for comparison post-injury. This process must be completed before participation in any organized athletic activity at Colorado State University.

A thorough review of their concussion and head injury history, as well as history of neurologic disorder and mental health symptoms and disorders, when they first arrive on campus as part of their pre-participation physical exam. Depending on the severity of prior injuries, the number of concussions, other individual concerns and based on the developing state of science, the team physician/primary health care provider should review each athlete's history and consider discussing with the student-athlete concerns about concussion and repetitive head impact as warranted, including potential risks and benefits from playing sport.

Baseline computerized neurocognitive testing, baseline symptom score, and standardized balance assessment will be performed for all varsity sports during their pre-participation physical. The team physician or designee will determine the need for additional consultation or testing and will consider a new baseline concussion assessment at six months or beyond for any NCAA student-athlete with a documented concussion, especially those with complicated or multiple concussion history. Importantly, baseline testing may inform post-injury evaluation; however, student-athletes who have suffered a concussion may perform at the same level or even better than their baseline testing, as motivation and other factors may differ in post-concussion testing. Ultimately, baseline testing serves as one of many potential factors in making a clinical decision.

**Neurocognitive Testing: IMPACT™ Test**
All incoming freshman and transfer athletes will have a baseline neurocognitive test as part of their pre-participation physical. Currently, Colorado State utilizes the IMPACT™ concussion management system (Impacttestonline.com).

**Symptom Evaluation:** The Post Concussion Symptom Scale will be administered during IMPACT™ and Sway Balance testing to establish a baseline symptom score. Baseline symptom score will be ascertained annually.

**Balance Assessment:** Balance will be assessed for baseline values (e.g. Sway balance, Balance Error Scoring System [BESS]). A balance assessment will be conducted annually.

## RECOGNITION AND DIAGNOSIS OF CONCUSSION

Per NCAA guidelines, medical personnel with training in the diagnosis, treatment and initial management of acute concussion must be present at varsity competitions for CSU basketball, diving, football, pole vault, soccer, softball, and volleyball.
**NOTE:** To be present means to be on site at the campus or arena of the competition. Medical personnel may be from either team or may be independently contracted for the event.

Medical personnel will be available for varsity practice for CSU basketball, diving, football, pole vault, soccer, softball, and volleyball. Available medical personnel will be able to make immediate arrangements for athlete evaluation.
**NOTE:** To be available means that, at a minimum, medical personnel can be contacted at any time during the practice via telephone, messaging, email, pager, or other immediate communication means and that the case can be discussed through such communication, and immediate arrangements can be made for the athlete to be evaluated.

In any circumstance where a concussion is suspected in an athlete, the first priority is to remove the athlete from further practice or competition until a thorough sideline assessment can be made. Examples of signs that warrant immediate removal from the field include: actual or suspected loss of consciousness, seizure, tonic posturing, ataxia, poor balance, confusion, behavioral changes, amnesia).
Furthermore, if there is a question about the state of mental clearing it is best to err in the direction of conservative management and withhold the athlete from further practice or competition until an assessment can be arranged by a team physician (or designee).

The recommendations in this protocol for the management of concussions are based on review of the current medical literature and the NCAA Guideline for Sports-Related Concussion and are in full cooperation with Colorado State University Athletics' team physicians.

## ACUTE MANAGEMENT OF CONCUSSIONS

Per NCAA guidelines, any student-athlete diagnosed with a concussion, either by a team physician or certified athletic trainer shall be removed from play for the remainder of that day's practice or competition. It is necessary to schedule further evaluation with a team physician and follow-up neurocognitive and balance testing as soon as possible upon return to campus for the student-athlete who sustains a concussion while competing in away events.

Initial evaluation of the athlete by a certified athletic trainer, and when possible, a team physician or physician designee, should allow ample time to conduct a multi-modal screen to evaluate a potential concussion. The evaluation must include an immediate assessment/neurological screen for "red flags" or observable signs (as noted in the Emergency Action Plan below). The initial evaluation may also include the following as clinically indicated:

- Clinical assessment to rule out cervical spine trauma, skull fracture, intracranial bleed, or other catastrophic injury
- Symptom assessment (Sway symptom inventory)
- Physical and neurological exam.
- Cognitive assessment (Sway, Impact)
- Balance exam (Sway)

This information should be noted and used to dictate care on a case-by-case basis.

A student-athlete may only return to play the same day if the athletic trainer, team physician or physician designee determines that concussion is no longer suspected after evaluation. Even in such cases, consider next day follow-up assessment because initial symptoms may not appear for several hours.

**Emergency Action Planning for Concussion:**
*A student-athlete must be immediately removed from play and assessed for possible transport to a local hospital/trauma center when any of the following signs/symptoms/behaviors are present*:

- Neck pain or tenderness.
- Seizure or convulsion.
- Double vision.
- Loss of consciousness.
- Weakness or tingling/burning in more than one arm or in the legs.
- Deteriorating conscious state.
- Vomiting.
- Severe or increasing headache.
- Increasingly restless, agitated, or combative.
- Glasgow Coma Scale Score <15.
- Visible deformity of the skull.

## POST CONCUSSION MANAGEMENT

The student-athlete will receive serial monitoring of his/her mental/cognitive status for deterioration. They (and a responsible adult, if available) will be provided with a closed head injury symptom handout (see appendix) with written discharge instructions and protocol for emergency action, including transportation for further medical care, in case of symptom deterioration. Communication regarding the plan of care for a suspected concussion will be appropriately documented.

Once a diagnosis of concussion has been made, the following steps will be implemented:

- Serial exams will be conducted to monitor clinical progress and may include monitoring of vital signs, c-spine assessment, neurological evaluation and modified VOMS.
- A Symptom Inventory shall be performed on a regular basis until an athlete has a symptom score of zero or equivalent to baseline assessment results.
- Balance assessments will be measured as needed to determine a return to baseline has occurred.
- Neurocognitive testing using the IMPACT™ system will be used to assess the level of cognition of the injured athlete.
    - IMPACT™ testing should be re-administered if an athlete is suspected of sustaining a concussion, even if it is considered to be mild. IMPACT™ post-concussion follow-up evaluations can be conducted within 24-72 hours of injury (to help

determine the severity of injury) and subsequently as needed. An athlete's specific circumstances may make it difficult to follow the scheduled testing protocol.
- No athlete with statistically significant differences in change scores in any category shall be progressed unless cleared to do so after a review of the test with a team physician, physician designee or neuropsychologist.
- IMPACT™ testing should not occur more than once a day. Attempts will be made to avoid testing on consecutive days to avoid a test-retest bias unless otherwise directed by team physician, physician designee or neuropsychologist.

In addition, the subacute management plan may consider evaluating for the following, as clinically indicated:

- Screen for fear, anxiety or depression or other mental health issues.
- Screen for sleep disturbance.
- Graded aerobic exercise testing**.**

**Re-evaluation**

CSU sports medicine staff will evaluate the student-athlete when there are concerns of atypical presentation, persistent symptoms >4 weeks, or prolonged recovery, in order to consider additional diagnoses, management options, and consideration for referral. Additional diagnosis include but are not limited to: fatigue and/or sleep disorder; migraine or other headache disorders; mental health symptoms and disorders; ocular dysfunction; cervical and vestibular dysfunction; cognitive impairment and autonomic dysfunction including orthostatic intolerance and postural orthostatic tachycardia syndrome; pain.

Accommodations will be made to promote physical and cognitive rest for post-concussion student-athletes:

Meetings*:* Student Athletes may be excused from team meetings by the sports medicine staff as dictated by post-concussion symptoms.

Academics: In certain cases, academic modifications may be made by the CSU Sports Medicine staff in conjunction with CSU Student-Athlete Support Services (SASS) staff and CSU Case Management.

Rehab considerations: Student-athletes who remain symptomatic post-concussion may be instructed to avoid or modify current injury rehabilitation programs in order to promote concussion recovery.

## RETURN TO LEARN GUIDELINES

The vast majority of young adults have a full return-to-learn with no additional academic support by 10 days post-injury. For those student-athletes with persisting symptoms a more formal plan may be in order. An athlete who has been diagnosed with a concussion will receive guidance on a stepwise return to academics. A designated person within the athletics department will help the student-athlete navigate the return-to-learn process. The initial stage will be a 24-48 hour period of relative rest with only daily activities that do not provoke symptoms (i.e. 5-15 minutes of cognitive activity at a time) followed by individualized, gradual return classroom/studying as tolerated. In complex cases of return to learn (i.e. symptoms >2 weeks), the student-athlete will have access to a multi-disciplinary team (e.g. team physician, neuropsychologist, certified athletic trainer, physical therapist, medical specialist, academic counselor, psychologist, Student Disability Center, University Case Management, etc.) to navigate the return to learn process. The student will be re-evaluated by the sports medicine staff should concussion symptoms worsen with academic challenges.

A student-athlete will not be required to participate in classroom activity on the same day a concussion is sustained.

The student-athlete will be provided with the level of academic intervention necessary to promote resolution of concussion symptoms.

- Initial adjustments to classroom curriculum and minor environmental changes may be implemented to support physical and cognitive rest for up to two weeks.
- Student-athletes who do not respond to adjustments may require more formalized academic accommodations through CSU Student Disability Center.

Student-athletes who do not respond to accommodations may receive an individualized education plan (IEP) in compliance with the Americans with Disabilities Act, as amended, in conjunction with campus academic resource providers.

## RETURN TO SPORT GUIDELINES

Any student-athlete who has been diagnosed with a concussion by a physician, as well as any athlete experiencing concussion-like symptoms for over 24 hours, is required to receive return to sport clearance from a Colorado State University team physician or their medically qualified designee, in accordance with applicable protocol, before returning to activity.

**Physical Exertion**

- Each NCAA student-athlete with a concussion must undergo a supervised stepwise progression management plan.
- The student-athlete will have an initial period of limited physical activity, and then progress with each stage below without worsening or new symptoms. *Each step typically takes at least 24 hours.*

**Graduated Return-To-Play Protocol*Symptom-Limited activity.**

1. Symptom-limited Activity. Daily activities that do not provoke symptoms such as walking, school.
2. Aerobic exercise with light resistance training as tolerated that does not result in more than mild and brief exacerbation of concussion symptoms. (ie, an increase of no more than 2 points on a 0–10 point scale for less than an hour when compared with the baseline value reported) prior to physical activity.
   Ex). Walking, swimming, stationary cycling, progress to light resistance training.
   2a. Light (<55% MPHR), then
   2b. Moderate <less than 70% MPHR.
3. Sport specific exercise (e.g. lifting, agility drills). No head-impact exposure.

   *Steps 4–6 should begin after the resolution of any symptoms, abnormalities in cognitive function and any other clinical findings related to the current concussion, including with and after physical exertion.*

4. Non-contact practice / training drills. Progression to more complex and intense training drills. May start progressive resistance training.
5. Full-contact practice. Following medical clearance, participate in normal training activities.
6. Return to sport. Normal game play. **Unrestricted return-to-sport should not occur prior to unrestricted return-to-learn for injuries occurring while the athlete is enrolled in classes.

If a student-athlete has a return of symptoms or develops new symptoms during any part of the progression, the athlete will drop back to the last asymptomatic level for 24 hours and begin again.

Clinical evaluation of post-concussive symptoms, prior concussion history, neurological examination, and any outside diagnostic testing deemed necessary will be utilized by the team physician or designee in establishing a timeline for an athlete to return to activity. It is important to note that this timeline could last from a period of days to weeks or even months, and could possibly result in eventual medical disqualification from Colorado State University Athletics. All cases will

be handled on a case-by-case basis. The decision by the Team Physician for all cases of a student-athlete's return to activity is final.

## REDUCING EXPOSURE TO HEAD IMPACT

Colorado State University takes the health and safety of each of its participating NCAA student-athletes seriously and strives to provide a safe environment for them. While "reducing" may be difficult to quantify, it is important to emphasize ways to minimize head impact exposure. The management plan for reducing exposure is informed by relevant guidance and principles, including but not limited to, *Interassociation Recommendations: Preventing Catastrophic Injury and Death in Collegiate Athletes*, *Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport*, *the Inter-Association Consensus: Year-Round Football Practice Contact Recommendations, Interassociation Consensus: Independent Medical Care for College Student Athletes Best Practices.*
*Examples include*:

- *Colorado State University teams will adhere to existing ethical standards in all practices and competitions.*
- *Using playing or protective equipment (including the helmet) as a weapon will be prohibited during all practices and competitions.*
- *Deliberately inflicting injury on another player will be prohibited in all practices and competitions.*
- *All playing and protective equipment (including helmets), as applicable, will meet relevant equipment safety standards and related certification requirements.*
- *Colorado State University will keep the head out of blocking and tackling in contact/collision, helmeted practices and competitions.*
- *Colorado State University will emphasize education of proper technique to reduce head impact exposure for all contact and collision sports, with special emphasis in pre-season.*
- *Colorado State University will adhere to policies and rules in sport that limit the number and duration of contact practices and activities in contact-collision sports.*
- *Integration of neuromuscular training warm-up programs.*

Appendices

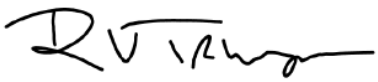
Academic Modifications Sheet
Concussion Take Home Instructions
NCAA Concussion Fact Sheets
Symptom Inventory Sheet

Adopted August 1, 2010
Revised August 1, 2014
Revised June 1, 2015
Revised August 1, 2016
Revised May 1, 2017
Reviewed April 15, 2018
Reviewed April 15, 2019
Revised May 4, 2020
Revised May 1, 2021
Revised May 5, 2022
Revised Aug 1, 2023
Revised Jan 1, 2024
Reviewed June 1, 2025
Reviewed May 1, 2026

By signing and dating this form, I hereby acknowledge that for the 2025-2026 academic year, the Colorado State University Concussion Safety Protocol is consistent with the NCAA Concussion Safety Protocol Checklist and otherwise fulfills the requirements of all applicable NCAA Concussion Management Plan legislation.



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## ACADEMIC MODIFICATIONS FOLLOWING CONCUSSION

Patient Name: _____ Date of Birth: _____

Date of Evaluation: _____ Referred By: _____

Duration of Recommendations: 1 week 2 weeks 4 weeks Until further notice

**The patient will be reassessed for revision of these recommendations in _____ weeks.**

This patient has been diagnosed with a concussion and is currently under our care. Flexibility and additional supports are needed during recovery. The following are suggestions for academic adjustments to be individualized for the student as deemed appropriate in the school setting. Feel free to apply/remove adjustments as needed as the students symptoms improve/worsen.

**Attendance**

_____ No school for ___school days
_____ Attendance at school ___days per week
_____ Full school days as tolerated
_____ Partial days as tolerated

**Breaks**

_____ Dismissed home if symptoms do not subside
_____ Allow other breaks if deemed appropriate by school personnel

**Visual Stimulus**

_____ Allow student to wear sunglasses/hat
_____ Pre-printed/shared notes for class material
_____ Limited computer, TV, bright screen use
_____ Reduce brightness on monitors/screens

**Audible Stimulus**

_____ Avoid music or shop class
_____ Allow to wear ear plugs as needed

**Workload/Multi-Tasking**

_____ Prorate workload when possible
_____ Reduce amount of homework given at night
_____ Reduce overall amount of make-up work, class work and homework

**Testing**

_____ Additional time to complete tests
_____ No more than one test per day
_____ No standardized testing until _____
_____ Allow for oral response and oral delivery of questions, if available

**Physical Exertion**

_____ No physical exertion/athletics/gym
_____ Begin return to play protocol as supervised by medical/athletic training staff

**Additional Recommendations**

_____
_____
_____

**Accommodations for Prolonged Symptoms**

_____ Change in class schedule _____
_____ Special arrangements for tests, term papers and projects _____
_____
_____

**Current Symptoms List** (reported within the last 2 days)

| | | | |
|---|---|---|---|
| _____ Headache | _____ Visual Problems | _____ Noise Sensitive | _____ Light sensitive |
| _____ Nausea | _____ Balance Problems | _____ Mental Fogginess | _____ Irritability |
| _____ Dizziness | _____ Memory Issues | _____ Concentration Difficulty | |

I, _____, give permission for the CSU Sports Medicine staff to share the following information with Student-Athlete Support Services, CSU case management and my professors for communication to occur between the school and the CSU Sports Medicine Staff for changes to this plan.

_____ _____
Patient Signature Date Signature of Healthcare provider Date

# CONCUSSION TAKE HOME INSTRUCTIONS

At the time of your injury, you were examined for the possibility of a concussion. Based on our current assessment, we feel you are in a condition to return home with continued monitoring of symptoms. In the first few days after injury is important to limit activities that increase your symptoms of concussion.

**Protocol for Emergency Action:**
If experiencing new or increase in any of the symptoms listed below, call 911 to activate EMS or transport patient to emergency room for further evaluation, then contact a member of the CSU Sports Medicine staff.

**Symptoms:**

1. Loss of consciousness
2. Severe or worsening headache
3. Nausea or vomiting
4. Blurred/double vision or unequal pupil size
5. Progressive impairment in consciousness or inability to arouse patient
6. Drowsiness
7. Confusion, disorientation, memory loss
8. Change in personality
9. Weakness, numbness or loss of function or sensation in arms, legs, or face
10. Convulsions or seizures
11. Slurred speech
12. Dizziness or trouble keeping your balance
13. Fever or stiff neck
14. Fluid or blood coming from the ears or nose

A member of the CSU Sports Medicine staff may instruct a responsible adult to check you periodically for the above symptoms following a concussion. Do not take any medications unless you are instructed to do so by a member of the CSU Sports Medicine staff or a physician. Avoid alcohol. Do not drive while experiencing symptoms.

**IF ANY OF THE ABOVE SYMPTOMS PROGRESS RAPIDLY, CONTACT 911, THEN CONTACT A MEMBER OF THE CSU SPORTS MEDICINE STAFF.**

| Name: | Office: | Cell: |
|---|---|---|
| Madison Corona | 970-491-6756 | 303-229-3488 |
| Megan Frey | 970-491-6756 | 559-313-2079 |
| Melissa Haisch | 970-491-1046 | 501-366-4060 |
| Greg Jensen | 970-491-1046 | 970-290-1717 |
| Lee Land | 970-491-1046 | 970-889-1702 |
| Annie Lopez-Bauman | 970-491-6756 | 970-231-0470 |
| Hannah Walek | 970-491-6756 | 970-829-7295 |
| Nika Walker | 970-491-6756 | 907-412-5815 |
| Julie Wonch | 970-491-1046 | 734-536-5276 |
| Terry DeZeeuw | 970-491-6756 | 970-988-9866 |

Follow-up Care instructions for _____ (SA name):

You are scheduled to follow up with your care provider for clinical re-check:

Date: _____

Time: _____

Location: _____

Additional follow-up and care instructions will be provided based on clinical assessment.

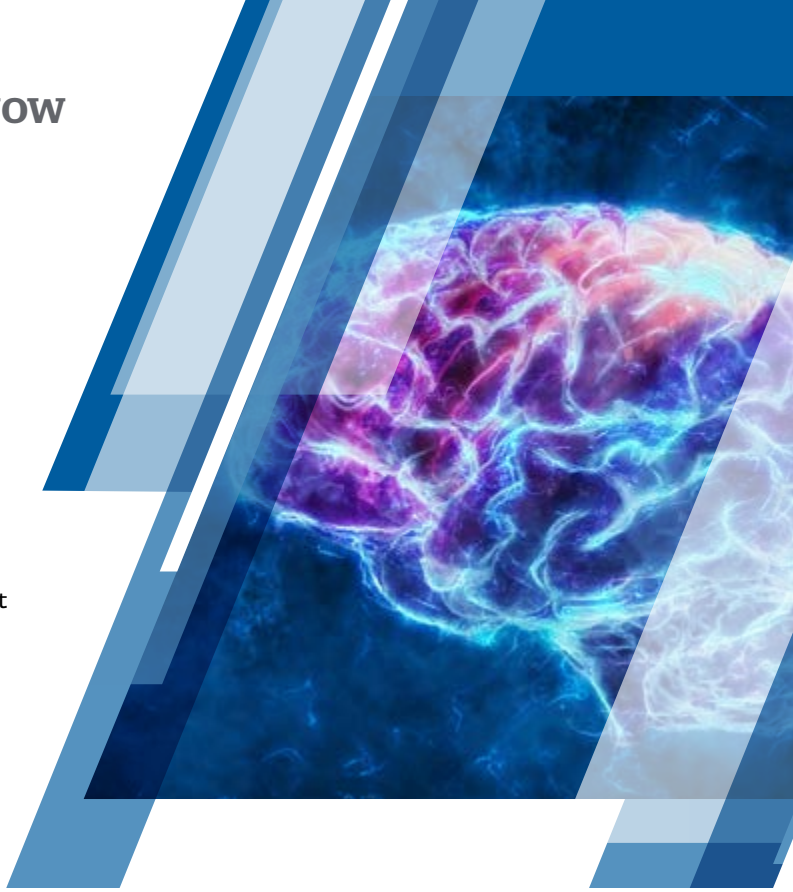
I acknowledge a post-concussion plan of care has been communicated by the medical staff to the student-athlete and responsible adult (if available).

Symptoms may evolve or manifest over time for all suspected and diagnosed concussions. Patient has been educated to follow the instructions outlined above in the **Protocol for Emergency Action** if experiencing new or increase in symptoms. Patient has been instructed to communicate all changes in symptoms with the CSU Sports Medicine staff to assist them in providing appropriate medical care.

| _____ | _____ | _____ |
|---|---|---|
| Medical Provider Name | Medical Provider Signature | Date |

WHAT STUDENT-ATHLETES NEED TO KNOW

# Concussion Safety



## What Is a Concussion?

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

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

Additional information on concussion diagnosis, management and prevention in collegiate athletes, including a complete definition of concussion, can be found **here**.

## How Can I Keep Myself Safe?

**1. Know the symptoms.**

You may experience ...

- Headache or head pressure.
- Nausea.
- Balance problems or dizziness.
- Double or blurry vision.
- Sensitivity to light or noise.
- Feeling sluggish, hazy or foggy.
- Confusion, concentration or memory problems.

**2. Speak up.**

- If you think you have a concussion, stop playing and talk to your coach, athletic trainer or team physician immediately.

**3. Take time to recover.**

- Follow your team physician and athletic trainer's directions during concussion recovery.
- When managed properly, most student-athletes recover fully from concussion. Exercise, under medical supervision, is a core component of concussion management.
- There may be negative consequences when concussion is left untreated.
- Once you've recovered from a concussion, talk with your physician about the risks and benefits of continuing to participate in your sport.

## How Can I Be a Good Teammate?

**1. Know the signs.**

You may notice that a teammate ...

- Appears dazed or stunned.
- Forgets an instruction.
- Is confused about an assignment or position.
- Is unsure of the game, score or opponent.
- Appears less coordinated, unsteady on feet or wobbly.
- Answers questions slowly.
- Loses consciousness.

**2. Encourage teammates to be safe.**

- If you think one of your teammates has a concussion, tell your coach, athletic trainer or team physician immediately.
- Help create a culture of safety by encouraging your teammates to report any concussion symptoms.

**3. Support your injured teammates.**

- If one of your teammates has a concussion, let them know you and the team support playing it safe and following medical advice during recovery.
- Being unable to practice or join team activities can be isolating. Make sure your teammates know they're not alone.

*No two concussions are the same. Symptoms may appear several hours after the initial impact or even the next day. Symptoms may also evolve over several days. If you are unsure if you have a concussion, talk to your athletic trainer or team physician immediately.*

## What Happens If I Get a Concussion and Keep Practicing or Competing?

- Due to brain vulnerability after a concussion, an athlete may be more likely to suffer another concussion while symptomatic from the first one.
- In rare cases, repeat head trauma can result in brain swelling, permanent brain damage or even death.
- Continuing to play after a concussion increases the chance of sustaining other injuries too, not just concussion.
- Athletes with concussion have reduced concentration and slowed reaction time. This means that you won't be performing at your best.
- Athletes who delay reporting concussion take longer to recover fully.

## What is the Recovery Time for a Concussion?

- Each athlete is different, but emerging information indicates that most athletes fully recover from concussion.
- Some athletes experience persisting post-concussive symptoms, which are managed with exercise and targeted treatment.
- If your symptoms persist, you may also have another treatable condition unrelated to your concussion. If you are experiencing any ongoing symptoms, please seek medical care with the team physician.

## What Do I Need to Know About Repeated Head Impacts?

- Research into the new concept of repeated head impacts is evolving rapidly.
- Most head impacts in sport occur at low levels well below the force needed to cause a sports-related concussion.
- The medical and scientific community continues to conduct research to determine if long-term exposure to head impacts may be deleterious to brain health.
- While many questions remain unanswered, the NCAA Concussion Checklist recommends that efforts should be made to reduce head impact exposure in both practice and game settings.

## Chronic Traumatic Encephalopathy ("CTE")

- In recent years, there has been ongoing research into CTE, and more research is needed to answer important questions.
- According to the Centers for Disease Control website, research-to-date suggests that CTE is associated with long-term exposure to repeated head impacts at levels that would cause injury to the brain.
- According to the CDC, there is no strong scientific evidence that shows that getting one or more concussions (or other mild traumatic brain injuries) or occasional hits to the head leads to CTE.

More research is needed to better understand:

- The causes of CTE, including the role of repeated head impacts.
- Other potential risk factors for CTE, including the role of a person's sex, genetics, medical history, and environmental and lifestyle factors.
- How the CTE pathology develops, and what symptoms CTE pathology may cause.
- Why some people develop CTE and others do not.

You can find more information on the emerging CTE research at various sources including the **CDC**, **NINDS** and the **Consensus Statement on Concussion in Sport**.

If you are concerned or have questions, please talk to your medical doctor.

## Did You Know?

- NCAA rules require that team physicians and athletic trainers manage your concussion and injury recovery independent of coaching staff, or other non-medical, influence.
- We're learning more about concussion every day. To find out more about the largest concussion study ever conducted, which is being led by the NCAA and U.S. Department of Defense, visit **ncaa.org/concussion**.

# CONCUSSION TIMELINE



### Baseline Testing

Balance, cognitive and neurological tests that help medical staff manage and diagnose a concussion.

### Concussion

If you show signs of a concussion, NCAA rules require that you be removed from play and medically evaluated.

### Recovery

Your school has a concussion management plan, and team physicians and athletic trainers are required to follow that plan during your recovery.

### Return-to-Learn

Return-to-learn should be done in a step-by-step progression in which adjustments are made as needed to manage your symptoms.

### Return-to-Sport

Final return-to-sport only happens after you have returned to your pre-concussion baseline and you've gone through a step-by-step progression of increasing activity.



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WHAT COACHES NEED TO KNOW

# Concussion Safety



## What Is a Concussion?

Concussion is a mild traumatic brain injury that results from either a direct blow to the head or an impulsive force to the body that causes significant head motion. Concussion symptoms can result immediately or develop over many hours.

Additional information on concussion diagnosis, management and prevention in collegiate athletes, including a complete definition of concussion, can be found here.

## How Can I Tell If an Athlete Has a Concussion?

**You may notice the athlete has a change in behavior or balance following a hit or impact, or other manifestations such as:**

- Appears dazed or stunned.
- Forgets an instruction.
- Is confused about an assignment or position.
- Is unsure of the game, score or opponent.
- Appears less coordinated, unsteady on feet or wobbly.
- Answers questions slowly.
- Loses consciousness.

**The athlete may tell you he or she is experiencing ...**

- A headache, head pressure or that he or she doesn't feel right following a blow to the head.
- Nausea.
- Balance problems or dizziness.
- Double or blurry vision.
- Sensitivity to light or noise.
- Feeling sluggish, hazy or foggy.
- Confusion, concentration or memory problems.

## What Happens If an Athlete Gets a Concussion and Keeps Practicing or Competing?

- Due to brain vulnerability after a concussion, an athlete may be more likely to suffer another concussion while symptomatic from the first one.
- In rare cases, repeat head trauma can result in brain swelling, permanent brain damage or even death.
- Continuing to play after a concussion increases the chance of sustaining other injuries too, not just concussion.
- Athletes with a concussion have reduced concentration and slowed reaction time. This means they won't be performing at their best.
- Athletes who delay reporting concussion may take longer to recover fully.

## What Is the Recovery Time for a Concussion?

- Each athlete is different, but emerging information indicates that most athletes fully recover from concussion.
- Some athletes experience persisting post-concussive symptoms, which are managed with exercise and targeted treatment.
- If an athlete's symptoms persist, they may also have another treatable condition unrelated to their concussion. If the athlete is experiencing any ongoing symptoms, they should seek medical care with the team physician.

## What Do I Need to Know About Repeated Head Impacts?

- Research into the new concept of repeated head impacts is evolving rapidly.
- Most head impacts in sport occur at low levels well below the force needed to cause a sports-related concussion.
- The medical and scientific community continues to conduct research to determine if long-term exposure to head impacts may be deleterious to brain health.
- While many questions remain unanswered, the NCAA Concussion Checklist recommends that efforts should be made to reduce head impact exposure in both practice and game settings.

*No two concussions are the same. Symptoms may appear several hours after the initial impact or even the next day. Symptoms may also evolve over several days. All possible concussions must be evaluated by an athletic trainer or team physician (or physician designee) with concussion experience.*

## Chronic Traumatic Encephalopathy ("CTE")

- In recent years, there has been ongoing research into CTE, and more research is needed to answer important questions.
- According to the Centers for Disease Control website, research-to-date suggests that CTE is associated with long-term exposure to repeated head impacts at levels that would cause brain injury.
- According to the CDC, there is no strong scientific evidence that shows that getting one or more concussions (or other mild traumatic brain injuries) or occasional hits to the head leads to CTE.

More research is needed to better understand:

- The causes of CTE, including the role of repeated head impacts.
- Other potential risk factors for CTE, including the role of a person's sex, genetics, medical history, and environmental and lifestyle factors.
- How the CTE pathology develops, and what symptoms CTE pathology may cause.
- Why some people develop CTE and others do not.

You can find more information on the emerging CTE research at various sources including the **CDC**, **NINDS** and the **Consensus Statement on Concussion in Sport**.

## Did You Know?

- Most contact or collision teams have at least one student-athlete diagnosed with a concussion every season.
- Your school has a concussion management plan, and team physicians and athletic trainers are expected to follow that plan during a student-athlete's recovery.
- NCAA rules require that team physicians and athletic trainers have the unchallengeable authority to make all medical management and return-to-sport decisions for student-athletes.
- We're learning more about concussion every day. To find out more about the largest concussion study ever conducted, which is being led by the NCAA and U.S. Department of Defense, visit **ncaa.org/concussion**.



## What Can I Do to Keep Athletes Safe?

| | Preseason | In-Season | Time of Injury | Recovery |
|---|---|---|---|---|
| **What can I do?** | Create a culture in which concussion reporting is encouraged and promoted. | Know the signs and symptoms of concussions. | Remove athletes from play immediately if you think they have a concussion and refer them to the team physician or athletic trainer. | Follow the recovery and return-to-sport protocol established by team physicians and athletic trainers. |
| **Why does it matter?** | Athletes who don't immediately seek care for a suspected concussion take longer to recover. | The more people who know what to look for in a concussed athlete, the more likely a concussion will be identified. | Early removal from play can mean a quicker recovery and help avoid further, potentially serious injury. | Team physicians and athletic trainers have the training to follow best practices related to the concussion recovery process. |
| **Tips and strategies** | Be present when your team physician or athletic trainer provides concussion education material to your team. Tell your team that this matters to you. | Check in with your team physician or athletic trainer if you want to learn more about concussion safety. | Provide positive reinforcement when an athlete reports a suspected concussion. | Tell athletes that health decisions, including clearance for unrestricted return to sport are determined by the team physician and athletic trainer. |

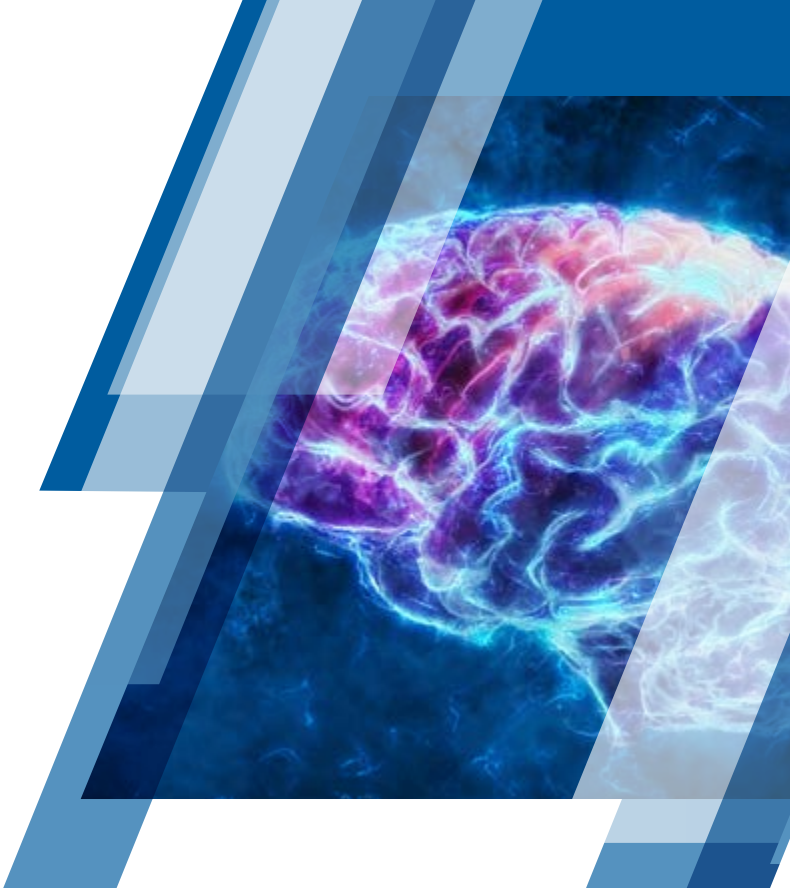
*You play a powerful role in setting the tone for concussion safety on your team. Let your team know that you take concussion seriously and reporting the symptoms of a suspected concussion is an important part of your team's values.*



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WHAT EDUCATORS NEED TO KNOW

# Concussion Safety



## What Is a Concussion?

The Consensus Statement on Concussion in Sport, which resulted from the 6th international conference, defines sport-related concussion as follows:

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

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

Additional information on concussion diagnosis, management and prevention in collegiate athletes, including a complete definition of concussion, can be found **here**.

## What Is Your Role in Concussion Recovery?

- Each athletics department should have a concussion management plan that outlines the steps to be taken by team physicians and athletic trainers following a sport-related concussion diagnosis and during a student-athlete's recovery.
- The concussion management plan should provide for the identification of an academic point person who will navigate return-to-learn activities with a student-athlete who has been diagnosed with a sport-related concussion.
- The return-to-learn pathway is considered part of the suggested medical management plan and, in more complex cases of return-to-learn, the academic point person will be part of a broader multidisciplinary team.
- Return-to-learn should be done in a step-by-step progression that fits the needs of the individual, with adjustments to be made as needed to manage the student-athlete's unique symptoms and recovery response.
- As an academic point person or other member of academic staff, it is beneficial to understand the science underlying concussion management and the rationale behind related return-to-learn considerations.

## Specific Return-to-Learn Considerations

Return-to-learn guidelines assume that both physical and cognitive activities require functional brain activity that may be negatively impacted by concussion. The student-athlete may appear physically normal but may be unable to perform as expected due to concussion symptoms.

The unique nature of concussion symptoms and recovery make it difficult to provide prescriptive recommendations for return-to-learn. Importantly, unrestricted return-to-sport should not occur before unrestricted return-to-learn for injuries occurring while the athlete is enrolled in classes. The broad return-to-learn recommendations outlined on the next page are based on available data and related expert consensus, and portions of the content have been previously published by the NCAA as part of its **Concussion Safety Protocol Checklist** and corresponding **Concussion Safety Protocol Template**.

# Return-to-Learn Recommendations

## Stepwise Progression

The first step of return-to-learn is relative physical and cognitive rest, although complete rest and isolation should be avoided. Relative cognitive rest involves minimizing potential cognitive stressors, such as reading and schoolwork. The necessary period of time that a concussed student-athlete waits before resuming class or homework should be individualized with a return to classroom/studying as tolerated. However, some student-athletes may not require a formal plan or accommodations. Return-to-learn should be gradual with specific attention to any significant worsening of concussion symptoms following cognitive exposure or symptoms lasting longer than two weeks. According to currently available expert consensus:

- If the student-athlete cannot tolerate light cognitive activity, they should remain at home or in the residence hall.
- Once the student-athlete can tolerate light cognitive activity, they should return to the classroom as tolerated, often in graduated increments.
- If the student-athlete experiences prolonged worsening of symptoms with academic challenge (i.e., more symptomatic than baseline), or scores on clinical/cognitive measures decline, the team physician or return-to-learn 'point person' should be notified, and the student-athlete's return-to-learn activity reassessed.

## Common Academic Adjustments

For the student-athlete whose academic schedule requires a minor modification in the first one to two weeks following a sport-related concussion, adjustments can often be accomplished through consultation between the student-athlete and the academic point person without material changes to schedules, curriculum or testing environments. Recovery and return-to-learn schedules will vary on a case-by-case basis but the vast majority of young adults have a full return-to-learn with no additional academic support by 10 days post-injury.

## Persisting Symptoms

- In the case of persisting symptoms, the extent of necessary academic adjustments/accommodations should be decided in consultation with a broader multi-disciplinary team that may include, among others, the team physician, athletic trainer, faculty athletics representative, coach, teachers, office of disability representatives, neuropsychologist or psychologist/counselor.
- Cases that cannot be managed through schedule or academic accommodations may require the engagement of other campus resources. These resources should be engaged in a manner consistent with the Americans with Disabilities Act Amendments Act and should include learning specialists and/or representatives from the campus office of disability services or ADAAA.

## Implementation of Return-to-Learn

The successful implementation of return-to-learn depends on several variables, including the following:

- Recognition that concussion symptoms vary widely among student-athletes, and even within the same individual who may be suffering a repeat concussion.
- Identification of an academic point person who can work with the recovering student-athlete to navigate the challenges that may occur in the academic space.
- Identification of symptoms that may warrant additional medical attention or impair cognitive recovery, such as fatigue, headache, mental health symptoms and disorders, ocular dysfunction, cervical and vestibular dysfunction, cognitive impairment, autonomic dysfunction and pain.
- Identification of additional campus resources that can help assure that the rights of the recovering student-athlete are adequately considered during this transition period.

## Available Campus Resources

Campus resources vary, and may include the following:

- Learning specialists. Many college campuses have certified learning specialists who have specialized knowledge of medical conditions such as concussion and post-concussion syndrome.
- Office of disability services. Most campuses have a disability office that is responsible for verifying each student's impairment under the Americans with Disabilities Act Amendments Act and some institutions also offer a separate ADAAA office.



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# CONCUSSION SYMPTOM INVENTORY

Score the following symptoms, based on how the individual feels now.

Scale: 0: You are not currently feeling this symptom,
1-2: Symptom is mild
3-4: Symptom is moderate
5-6: Symptom is severe.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Headache | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| “Pressure in head” | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Neck pain | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Nausea or vomiting | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Dizziness | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Blurred vision | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Balance problems | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Sensitivity to light | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Sensitivity to noise | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Feeling slowed down | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Feeling like “in a fog” | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| “Don’t feel right” | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Difficulty concentration | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Difficulty remembering | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Fatigue or low energy | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Confusion | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Drowsiness | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Trouble falling asleep | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| More emotional | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Irritability | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Sadness | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Nervous or anxious | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

**TOTAL: _____**