

## **Colorado State University Athletics**

### **Pre-Participation Physical Exam, Cardiac Prevention and Cardiac Screening**

Colorado State University athletics conducts a comprehensive pre-participation physical examination (PPE) by a team physician from Orthopaedic and Spine Center of the Rockies (OCR), or qualified designee, for all incoming student-athletes prior to participation, as well as an updated medical history and annual physical examination for all returning student-athletes. Student-athletes (SA) new to campus will be required to confirm their sickle cell solubility status by showing results of a diagnostic test or undergo testing upon arrival to campus.

The initial medical evaluation will include, but is not limited to a standardized, comprehensive health history, immunization history as defined by current CDC guidelines, baseline concussion testing as outlined in the CSU Concussion Protocol, cardiovascular screening as outlined in the CSU Cardiac Prevention and Care Plan, and relevant physical exam with emphasis on cardiovascular, neurologic and musculoskeletal evaluation.

#### **Cardiac Prevention and Care Plan**

*Components of Cardiac Prevention and Care Plan include, but are not limited to the following:*

- *An established, written, and rehearsed emergency action plan for treatment of cardiac arrest.*
- *Provide educational information for all incoming SA's as part of PPE onboarding process, outlining rationale for ECG screening, and risk vs benefit.*
- *ECG testing as part of the initial pre-participation physical exam*
- *Physician evaluation and interpretation of ECG.*
- *Cardiology overread for abnormal ECG's.*
- *Cardiology follow up evaluation and testing as indicated.*
- *Determination made regarding medical clearance.*

#### **Colorado State Athletics Emergency Action Plan for Cardiac Arrest**

Colorado State University has established a written emergency action plan for treatment of cardiac arrest which has been reviewed by a multidisciplinary team, athletic administration, and rehearsed among the following key personnel:

- All primary athletic healthcare providers (athletic trainers and team physicians).
- Director of medical services.
- All strength and conditioning coaches.

#### **Cardiac Emergency EAP**

- All athletic trainers, team physicians and strength and conditioning coaches maintain certification in CPR and automated external defibrillator (AED) use.
- All sport coaches receive training in CPR and automated external defibrillator (AED) use.
- A communication system has been established that ensures a rapid and coordinated response to cardiac arrest, both internally and for emergency medical services.

- AEDs are placed strategically near all high-risk venues, including weight rooms, indoor arenas/courts, practice facilities, stadiums and fields where organized sports take place. A comprehensive list of campus AED's can be located at: [Colorado State University Campus AED Map](#)  
In addition to fixed location campus AED's, the athletic department also utilizes mobile AED units which are on site for practice and competition as outlined in venue specific EAP's posted at each facility.
- Signage is clearly visible and strategically placed to indicate the location of each fixed location campus AED.
- Fixed location campus AEDs are readily accessible. All AED's are checked (with appropriate sign-off) at least monthly for proper battery charge and functional electrode pads, as part of the AED monitoring program provided by CSU Risk Management and Insurance.
- Emergency medical service entry and exit are pre-determined and secured for all high-volume events. Pre-determined EMS entry and exits are defined in venue specific EAP's and communicated with local EMS.

### **Cardiac Screen Education, Risks and Benefits**

As part of a comprehensive Cardiac Prevention and Care plan, Colorado State University utilizes multiple cardiac screening modalities in an effort to minimize risk of undetected cardiac conditions. This includes a comprehensive personal and family history and utilization of the current Pre-participation Physical Evaluation (PPE) Monograph for physical exam and cardiac screening, with additional testing as indicated consistent with medical consensus recommendations. Additionally, Colorado State University has implemented a one-time baseline ECG screening for all student-athletes prior to participation at Colorado State University.

It is recognized that ECG screening may not detect all potential cardiac conditions that could lead to sudden cardiac death (SCD). Baseline ECG screening may also result in additional testing for a small portion of the population (approx. 2-4%) based on false positive ECG results, which can lead to additional costs, anxiety, and the potential for individuals to be unnecessarily held from participation until further testing is completed. To minimize the delay secondary to follow up testing, Colorado State University has established a communication and referral system in partnership with supervising physicians and local cardiologist to efficiently and effectively manage follow up clinical and diagnostic care needs.

Colorado State University also cautions against the false security that may result from a comprehensive cardiac screening program and recognizes the value of having established and well-rehearsed emergency action plans in place in the event of a cardiac emergency.

### **Screening Process:**

- ECG's will be conducted by trained staff in conjunction with the physical examination. ECG's will be reviewed by a designated physician as part of the PPE examination process.
- All SA's will have a thorough review of health history, and a physical examination conducted by an OCR PCP (or designee).

- A designated physician will conduct the initial interpretation of baseline ECG's, *prior to medical clearance*.
- Cardiology overread will be conducted for all abnormal ECG's *prior to medical clearance*.
- A cardiology point person has been established to help coordinate necessary cardiology referral and follow up testing based on health history, diagnostic testing, and physician examination.

### **Medical Clearance**

- Medical clearance will be determined based on consensus recommendations following the initial PPE and recommended follow up care. The CSU designated Team Physician (or his/her designee) has the final authority to decide if and when a student-athlete is medically cleared for CSU athletic participation. A student-athlete's outside medical provider does not have authority over the participation status of the student-athlete, although the medical opinion of an outside medical provider would be taken under consideration by the university when exercising its decision-making authority.

### **References:**

Hainline, et al. International Consensus Statement on Cardiovascular Care of College Student-Athletes, *Journal of the American Cardiology Association*, 2016; 67:2981-95

NCAA Sport Science Institute (2024). *NCAA Cardiovascular Care Checklist of Best Practices for NCAA Member Institutions*. National Collegiate Athletic Association.  
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