4.4 – Heat Related Illness

If an individual exhibits signs of heat related illness, the Athletic Trainer will handle each situation in accordance to the following definitions and treatments:

Definitions

1. Muscle Cramps
    a. Muscle cramps are sudden and sometimes progressively evolving, involuntary contractions of skeletal muscle during or after exercise.
        i. **Signs and symptoms include, but not limited to:** visible cramping in parts of or all of the muscle/muscle groups, localized pain, dehydration, thirst, sweating, fatigue.
        ii. **Treatment:** immediate treatment is best to rest and passive static stretching of affected muscle until the cramp subsides. Need to continue with fluid absorption, retention with beverages that contact sodium and carbohydrates.
2. Heat Exhaustion
    a. Heat Exhaustion is the inability to effectively exercise in the heat, secondary to a combination of factors, including but not limited to cardiovascular insufficiency, hypotension, energy depletion, and central fatigue.
        i. **Signs and symptoms include, but not limited to:** elevated core temperature (<104.9 *F), high rate/volume of skin blood flow, heavy sweating, dehydration. Athletes may faint or collapse with minor cognitive changes, low blood pressure, fatigue, weakness, or impaired muscle coordination.
        ii. **Treatment:** Remove any excess clothing or equipment. Move the athlete to a cool or shaded area. Cool the body down with ice towels, fans, etc. Monitor vital signs while keeping the athlete supine with legs elevated. **If the athlete's condition worsens, treat for Exertional Heat Stroke (See #3) and call for EMS.**
3. Exertional Heat Stroke (EHS)
    a. Exertional Heat Stroke is a medical emergency. EHS is a result of both metabolic heat production and environmental heat load that occurs when the thermoregulatory system becomes overwhelmed due to excessive heat production or inhibited heat loss, or both. This results in an elevated core temperature greater than 105*F
        i. **Signs and symptoms include, but not limited to:** (Central Nervous System - CNS) dysfunction (collapse, aggressiveness, irritability, confusion, seizures, altered consciousness, loss of

balance and coordination, delirium), a core temperature of greater than 105*F, low blood pressure, hyperventilation, hot and wet skin.

ii. **Treatment:** Active EMS as soon as EHS is suspected (CNS dysfunction plus a core body temperature >105*F). Begin Cold Water Immersion immediately with the athlete submerged in water up to the neck. The goal is to get the core body temperature lowered to 102*F in 30 mins after collapse. Make sure all excess clothing and equipment are removed to help with cooling (can be down while being submerged to start the cooling process sooner and not delaying any further). A Rubbermaid Submerge tank is located in the back of the field house in the space labeled as custodian. This door is on the side of the building facing the school. Another option is one whirlpool in RHS will be fully filled with water and have ice ready on standby. The student-athlete will be taken to whichever location is the closest at that time. Continue to monitor core body temperature and other vital signs until EMS arrives. **The athlete will not be transported until their core body temperature is under 102*F and is stable.**

4. Rectal Thermometry
    a. Rectal thermometry is the clinical gold standard in assessing core body temperature in the event of a suspected Exertional Heat Stroke. No other methods are valid or reliable. As of the writing of this manual, HCPS has not approved rectal thermometry to be used.

4.5 – Sickle Cell

1. Sickle Cell disease is a mutation in the hemoglobin that results in low oxygen conditions. This process results in a distortion of the red blood cells, forming in a "sickled-shaped or a crescent-shaped" red blood cell.
2. Sickle Cell Disease or Sickle Cell Trait will be noted on an individual's Pre-Participation Exam form prior to participation.
    a. **Signs and symptoms of a sickling event:** leg or low back cramps or spasms, weakness, debilitating low back pain, difficulty recovering, and fatigue. A sickling collapse will usually happen within the first 30 minutes on the field/court and core body temperature will not be greatly elevated.
    b. **Treatment:** Complaints or signs and symptoms of a sickling event in someone with known SCT/SCD should be treated as such and **treated as a medical emergency.** Activate EMS. Athlete should be immediately removed from play and have vitals checked. Oxygen should also be administered immediately. If heat is

suspected to be a contributing factor, cooling the athlete down is also vital.

3. The ATC will have a meeting with any coach that has an athlete with sickle cell trait or anemia as reported on their physical. The ATC will educate the coach on what sickle cell trait/anemia is and give them a copy of the "Sickle Cell Fact Sheet." A copy of this fact sheet is in the appendix.
4. The ATC will also meet with the athlete and their parent/guardian to discuss getting a care plan from their physician. In case of a sickling emergency, the ATC does have access to oxygen and would activate the EAP and begin giving oxygen.