

Cartersville City Schools – Heat Guidelines

Guidelines adopted from the National Athletic Trainers Association (NATA)

Signs and Symptoms of Heat Problems:

The following are common signs and symptoms related to heat illness, but are not intended to represent a complete list. In the event an athlete is suffering from one or more of the following, the athlete should be referred to appropriate allied health care or medical professional for full evaluation.

- Muscle spasms/cramps
- Heavy or profuse sweating
- Skin is flushed or cool and pale
- Headache
- Dizziness
- Rapid pulse, nausea, weakness
- Disoriented, confusion
- Elevated body core temperature
- Cessation of sweating
- Red, dry skin
- Shallow breathing and rapid pulse
- Loss of consciousness

Three Types of Heat Illness

The symptoms of heat illness range from mild to life-threatening. The heat is no time to tough it out. Recognizing mild symptoms early helps prevent more serious conditions.

Types of Heat Illness	Symptoms	Initial Treatment
Heat Cramps	Painful muscle spasms in the legs, arms or torso. Risk of cramping increases with lack of acclimatization, dehydration and use of diuretic medications	Rest and stretch the affected muscle. Drink sports drinks to help replace fluids and sodium. I.V. fluids can be avoided if precautionary steps are taken early
Heat Exhaustion	Unusual fatigue, nausea, headache, dizziness, vomiting, chills	Rest in a cool, shaded area with legs elevated. Rehydrate! Drink small amounts of fluid often. Remove excessive clothing and equipment. Do not resume exercise until resting at least two hours or more
Heat Stroke	Dizziness, light-headedness, incoordination, irritability, belligerence, confusion, seizures, coma	Call 911! This is a true medical emergency and should be treated at a hospital. Rapid cooling is required before transport. Remove unnecessary clothing, immerse in ice water, spray the body with water, wrap in cool wet towels or cool body with ice packs

Sports Medicine Tip Sheet: Heat Illness, Elizabeth Joy, M.D., FACSM

Heat Illness/Injury Facts:

- Adolescents take longer to acclimatize to the heat than adults
- Weight loss of water greater than 3% of body weight significantly increases the risk of heat related illness.
- 1.5 times the amount of water lost must be consumed to replace lost weight.
- Unrelated illnesses causing vomiting and/or diarrhea will increase risk of heat related illnesses. These conditions should be brought to the attention of the ATC and/or coaching staff prior to participation and close monitoring of these individuals should take place during practice sessions and competition.

- Athletes taking certain medications including diuretics, antihistamines, beta blockers and anti-cholinergics are at higher risk for heat illnesses.
- Light colored breathable clothing can assist the body in cooling.
- Athletes who are overweight, poorly conditioned, recovering from illness, lacking in sleep, or taking medications are at added risk for heat illnesses and should be monitored closely and/or have their participation level modified.

Recommendations for Fluid Replacement:

- All schools should establish a Fluid Replacement Protocol for their facility. (see recommendations below)
- All athletes should inform their coaches and/or athletic training staff of any pre-existing heat illness, gastro-intestinal condition and/or medical complication prior to exercising in the heat.
- Weigh athletes before and after each practice during hot weather. Athletes should conform to a restricted activity schedule if not within 1% of the previous day's PRE-EXERCISE weight.
- Replace fluids at a rate of 24 fluid ounces for every pound of body weight lost after exercise
- Athletes should be educated in the process of hydrating themselves as a 24 hour a day process.
- Athletes should begin every athletic activity well hydrated.
- During exercise, the average person should drink 8 – 12 oz of fluid every 20 to 30 minutes.
- Urine color is an easy method to determine hydration status. Light yellow to clear urine indicates a well-hydrated athlete.
- Water should be available to athletes at all times and never be withheld from exercising individuals.

National Athletic Trainers Association's (NATA) Recommendations on Fluid Replacement:

- Educate athletes on the effects of dehydration on physical performance.
- Inform athletes on how to monitor hydration status.
- Convince athletes to participate in their own hydration protocols based on sweat rate, drinking preferences, and personal responses to different fluid quantities.
- Encourage coaches to mandate rehydration during practices and competitions, just as they require other drills and conditioning activities.
- Have a scale accessible to assist athletes in monitoring weight before, during, and after activity.

- Provide the optimal oral rehydration solution (water, CHOs, electrolytes) before, during, and after exercise.
- Implement the hydration protocol during all practices and games, and adapt it as needed.
- Finally, encourage event scheduling and rule modifications to minimize the risks associated with exercise in the heat.

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Full text can be found on NATA's website: www.nata.org

Acclimatization to Heat:

Another way to help prevent heat stress is to become acclimatized to the weather. Acclimatization means becoming adapted to the weather or climate. The process takes 7 to 12 days. Studies have shown adolescents take longer to acclimatize to heat than adults. As a result of acclimatization, the sweating mechanism of a person is enhanced:

- onset of perspiration occurs earlier
- perspiration increases
- increase in blood volume with the more training an individual does
- improves supply of oxygen to the muscles
- heart rate decreases
- core body temperature does not rise as high during exercise

Other facts about heat illnesses and exercising in the heat:

- Dehydration of 1% to 2% of body weight begins to impact athletic performance
- Dehydration greater than 3% of body weight may increase an athlete's risk of heat illness.
- Sports drinks should contain less than 8% carbohydrate. Carbohydrate content greater than 8% compromises the rate of gastric emptying and should be avoided.
- Wear light weight and light colored clothing
- Avoid wearing articles that prevent water absorption
- Early morning commonly produces a humid environment and lower temperatures. Usually, as the sun rises, the temperature will increase and the humidity decreases. As the evening hours approach, the temperature decreases and the humidity will rise. Often, the most critical times to monitor athletes'

ability to exercise in hot weather occurs when the temperature rises quickly during the early morning prior to the sun burning off the humidity, or during storms when the humidity remains high due to cloud cover, etc.

- A mild breeze can reduce the humidity on a particular field, as well as improve the evaporative process.
- Field watering after practice sessions are complete can help reduce the ambient humidity on or near an athletic field, thus reducing the heat stress on athletes.

ACTIVITY DURING EXTREME HOT AND HUMID WEATHER CHART

American College of Sports Medicine Wet Bulb Globe Temperature Index Risk Chart

WBGT	Flag	Risk	Comments
< 64° F	Green	Low	Low risk is present based on gender, age, body weight, etc.
64 - 73° F	Yellow	Moderate	Risk increase as event progresses through the day
73 – 82 °	Red	High	Aware of injury potential; at risk individuals should not compete
>82°	Black	Extreme	Consider rescheduling or delaying event, if continuing be on high alert

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Wet bulb global temperatures are recorded using a QUESTemp 34 Thermal Environment Monitor.

OTHER RECOMMENDATIONS:

Fluid replacement should be at a rate of 24 oz for every pound of body weight lost after exercise.

- Light colored, loose clothing is suggested during activity in hot weather.
- Athletes are encouraged to wear sunscreen on exposed skin during hot, sunny conditions.
- Adequate fluid supply should be readily available at all times during activity in hot weather.
- Individuals poorly acclimatized, or poorly conditioned are at increased risk for heat related illness/injury and should be monitored closely or placed on a modified participation schedule.
- Athletes having a pre-existing dehydrated state (recent fever or gastro-intestinal illness) or pre-existing heat injury are at a much higher risk for heat related illness/injury and should be monitored closely or placed on a modified participation schedule.
- Medications including diuretics, antihistamines, beta blockers and anti-cholinergics increase the risk of heat illness/injury.

- Overweight athletes are at increased risk for heat illness/injury and should be monitored closely.
- Energy, ergogenic, and dietary supplements such as Creatine may cause an increase in dehydration and heat related illness and/or injury.