ANNVILLE-CLEONA SCHOOL DISTRICT HEAT GUIDELINES/PROCEDURES

Practice and competition in hot and humid environmental conditions poses special problems for student-athletes and individuals participating in outdoor activities such as physical education classes and band activities. Heat stress and resulting heat illness is a primary concern in these conditions. Although deaths from heat illness are rare, constant surveillance and education are necessary to prevent heat-related problems. The following practices should be observed.

General Considerations for Risk Reductions

1. Encourage proper education regarding heat illnesses (for athletes, coaches, parents, medical staff, etc.) Education about risk factors should focus on hydration needs; acclimatization, work/rest rotation, signs and symptoms of exertional heat illnesses, treatment, nutritional issues and fitness status.
2. Assure that onsite medical staff (Certified Athletic Trainer) has authority to alter work/rest ratios, practice schedules, amount of equipment, and withdrawal of individuals from participation based on environment and /or athlete's medical condition.

<u>General Guidelines:</u>

1. Gradual acclimatization of the athletes to hot/humid conditions is a must. Student-athletes and other individuals should be exposed gradually to hot/or humid environmental conditions over a period of 7 to 10 days to provide better heat acclimatization.
2. Clothing and protective gear can increase heat stress. Dark colors absorb solar radiation, clothing and protective gear interfere with the evaporation of sweat and other avenues of heat loss. During the acclimatization process, student athletes should practice in light colored t-shirts, shorts, socks and shoes. Rubberized suits should never be used. Special consideration should be considered for the sports that require protective gear and modify based on environmental conditions.
3. To identify heat stress conditions, measurements of environmental conditions will be taken daily, which may even include 30 mins prior to activity to ensure the best decisions are made in regard to modifications of activity if necessary. To prevent heat related illnesses the Certified Athletic Trainer and the Athletic Director will make final decisions about practice and game participation due to hot and humid weather conditions.
4. Regular measurements of environmental conditions include the wet-bulb temperature, dry bulb temperature, humidity, air temperature and solar radiation which will determine any necessary activity modifications.

This heat index chart is designed to provide general guidelines for assessing the potential severity of heat stress. Individual reactions to heat will vary. In addition, studies indicate that the susceptibility to heat disorders tends to increase with age. **Exposure to full sunshine can increase Heat Index values by up to 15° F.**

How to use Heat Index:

1. Locate on the **chart above** the current Air Temperature down left side
2. Locate the current Relative Humidity across the top
3. Follow across and down to find Apparent Temperature (what it feels like to the body)
4. Determine heat stress risk on **chart below**

Heat Illness Risk

Apparent Temperature	**Heat Stress Risk with Physical Activity and/or Prolonged Exposure**
80° to 90°	**Exercise caution; dehydration likely if athlete fails to drink adequate fluids**
91° to 103°	**Exercise extreme caution: Heat cramps or heat exhaustion possible**
104° to 124°	**Danger: Exertional heat cramps or heat exhaustion likely, heatstroke possible**
125° and up	Extreme Danger: Exertional Heatstroke highly likely

STEPS FOR MONITORING HOT WEATHER:

- Weather should be monitored by designated athletic department personnel (Athletic Trainer if present) and an advisory should be issued to school coaching staff when applicable. Usually by email the day prior to the event warning of the potential, and the day of the event with any modifications for participation.
- Athletic Department officials should use a Wet Bulb Globe Temperature Measuring (WBGT) Device. It is considered the gold standard measurement tool. The WGBT considers ambient temperature, relative humidity, wind, and solar radiation. Our device is the Kestrel 5400.
- The Heat Index considers effects of ambient temperature and relative humidity only.
- There is a WBGT app for iOS or Android called WeatherFX, to estimate WBGT if an athletic official is not around to measure environmental conditions or see the **CHART 1** below.
- Weather readings MUST be measured at the practice/game site, using a WGBT Device (or Heat Index Monitor). Measurements should be obtained beginning at least 1 hour prior to the event/warmups and monitored every 30 minutes thereafter if in the moderate to extreme risk category.
- Based on information from local/on-site weather measurements and from the National Weather Service, determine the risk of potential danger to participants using Table 1 below. Issue a warning and implement the practice or game plan for that day to be distributed to all coaches prior to practice/game time. See list on pg. 3 for additional Competition Modifications.

- Avoid scheduling training and competitions during the hottest part of the day (between 11am and 4pm). Shaded Areas should be easily accessible to athletes during rest/fluid breaks with unlimited fluids available

Activity Modification Chart Table 1 Regional Category 3 Guidelines

RISK	WBGT	ACTIVITY MODIFICATIONS
GREEN – Minimal risk	<82.1	Normal activities 3 Separate 3 minute breaks each hour of training OR a 10 minute break every 40 mins
YELLOW- Low Risk	82.2-87.0	3 Separate 4 minute breaks each hour, OR a 12 minute break every 40 mins
ORANGE- Moderate Risk	87.1-90.0	Maximum of 2 hours of training with 4 by 4 minute breaks each hour or a 10 minute break every 30 mins of training.
RED – High Risk	90.1-91.9	Maximum of 1 hour of training with 4 by 4 minute breaks within the hour. No additional conditioning allowed.
BLACK – Extreme Risk	>92.0	No Outdoor Training, delay training until cooler or cancel training.

Modifications MUST be made if the environment is putting athletes at greater risk for heat illness.

Procedure for Athletic Participation in the HEAT Recommended Preventative Strategies for Competitions

ACTIVITY MODIFICATIONS

- Unlimited supply of water at the site of each activity
- Move competition times to a cooler part of the day; early morning or early evening
- Meet with officials prior to game to discuss any or all of the concerns and/or strategies.
- Use player substitutions more often during play
- A mandatory water time out at the mid-way point of each half of play for both team
- Extended halftime for players to recover/cool more completely, allow for teams to go to shaded areas
- Cold water/ice towels and/or fans should be used to cool players
- Recommend removal of helmets and other equipment during rest periods or stoppage of play.
- Have plenty of extra ice and water at the site in the event a player needs immediate first aid/cooling. An on-site cold/ice water tub for emergent athlete immersion is recommended located in the training room. Also, "ice taco" method with tarps and ice/water.
- Athletic Trainers/Coaches should be especially vigilant and monitor player's physical condition in extreme temperatures

Hydration

- Allow athletes unlimited access to water during practice/competition
- Keep in mind individual fluid needs vary. Each athlete should determine their own individual needs.
- Ensure an unlimited supply of water at the site of activity
- As the heat risk category increases, an increase in the number and duration of hydration breaks should be implemented, along with shortening practice time.

Clothing

- It is essential that everyone is made aware of the importance of: Wearing appropriate clothing during play (wear light colors, wicking quick dry fabric)
- How equipment influences one's ability to dissipate heat effectively.
- Appropriate application and reapplication of SPF 30+ sunscreen

Factors Affecting Body Temperature Regulation

- Physical Effort Unmatched to Physical Fitness (Warrior mentality)*
- Increased WBGT
- Hydration Status/Fluid Intake/Dehydration Greater than 3% body weight loss during the event*
- Sleep
- Underlying Illness (Fever, Infection)
- Body Mass Index (larger BMI greater risk)
- Age of Athlete (children/adolescent, elderly)
- Prior History of heat illnesses
- Unacclimatized athletes (early season, unusually high temps)

- Some medications and/or some medical conditions
- Heavy or “Salty Sweaters”
- High Temperature/humidity the previous participation day

RISK FACTORS FOR HEAT ILLNESS

- Exposure to prolonged or abnormal amounts of heat and humidity can be especially dangerous for young athletes who sweat less, adjust more slowly and produce more internal heat than adults.
- Remember: More water does not make it less hot!
- Exercise in a hot environment, with associated fluid loss and elevated body temperature, can lead to: Dehydration, Heat Exhaustion and Exertional Heat Stroke (EHS). EHS is a preventable, potentially fatal condition and must be treated immediately.
- Children who take certain medications, have chronic health problems or are overweight may be more susceptible to heat illness.

HEAT ILLNESS DEFINITIONS:

Dehydration

- Fluid loss occurs during exercise, due to perspiration and respiration.
- It makes an athlete more susceptible to fatigue and muscle cramps. Inadequate fluid replacement before, during and after exercise will lead to excessive dehydration and may lead to other heat illnesses. Treatment: Fluid replacement before, during and after activity until urine is a light lemonade color and until the individual has replaced fluid losses within 2% of their pre-exercise body weight.

Heat Exhaustion

- Dehydration can lead to heat exhaustion and an inability to sustain adequate cardiac output.
- Symptoms include: - Fatigue, weakness - Headache, dizziness -Pale, clammy, sweaty skin - Loss of endurance/skill - Lightheadedness -Nausea
- Athletes will pass little urine, which will be highly concentrated.
- Muscle cramps may be associated with heat exhaustion Treatment: Cool athlete in shade or air conditioning, ice towels, remove equipment, elevate legs. Fluid replacement before, during and after activity until urine is a light lemonade color and until the individual has replaced fluid losses within 2% of their pre-exercise body weight.

Exertional Heat Stroke

- Severe overheating, thermoregulatory failure may lead to exertional heat stroke.
- More or Large amounts of water do not prevent heat stroke

· **HEAT STROKE is LIFE THREATENING and PREVENTABLE!**

- Symptoms include: - White skin, may or may not be sweating - Fatigue - Confusion - Headache, dizziness - Increased body temperature (> 104 F) - Nausea - - Increased heart rate, respirations - Collapse
- Exertional Heat stroke may arise in an athlete who has not been identified as suffering from heat exhaustion and has persisted in further activity. Treatment: Immediate, drastic on-site cooling in ice/cold water immersion, fans, ice cold wet towels replaced every 2 minutes over the entire body surface; then EMS to hospital after cooling. COOL FIRST, TRANSPORT SECOND when appropriate medical personnel are present.
- All Interscholastic athletics at Annville-Cleona School District are expected to adhere to the following policy for athletic participation in all sports during times of high heat and/or humidity. Exertional Heat Stroke is on the rise in this country and is currently among the top three reasons why athletes die during sporting activities. Annville-Cleona has provided this guideline for athletic activity in the heat that sets critical standards to protect athletes against heat illnesses, and potentially save lives.

This procedure follows recommended guidelines from the National Athletic Trainers' Association, American College of Sports Medicine, and the Korey Stringer Institute.