



Athletic Heat Management Plan
2018-2019

ACPS is committed to safe practice and provides a Heat Management Plan to ensure that on an annual basis administrators, athletic directors, athletic trainers, coaches, volunteers, student athletes and their parents are educated about heat illness.

ACPS recognizes that Heat Related Illness (HRI) is a spectrum of disorders due to environmental exposure to **heat**. The three main types of HRI are heat cramps, heat exhaustion, and heatstroke. HRI may lead to death if not properly diagnosed and treated. Catastrophic heat related injuries are preventable.

According to the CDC, heat illness occurs when the body's temperature control system is overloaded. The body usually cools itself by sweating which dissipates heat from the core of the body in order to keep internal organs cool. Certain conditions inhibit the ability to effectively cool through sweating, thereby compromising the body's ability to cool itself. Body temperature can rise rapidly, which can damage the brain or other vital organs. Factors that can compromise the effectiveness of cooling through sweat in conditions of high heat and humidity that can make an athlete susceptible to HRI include:

- Dehydration
- Sunburn
- Fever
- Respiratory or g.i. illness
- Recovering from illness
- Obesity
- Certain medications
- Recent alcohol use
- Lack of acclimatization
- Lack of adequate sleep
- Caffeine and some supplements
- Previous history of HRI

Heat Cramps

- Heat cramps are muscle pains or spasms, usually in the abdomen, arms, or legs that might occur in association with strenuous activity.
- Athletes who sweat profusely during strenuous activity are prone to heat cramps.
- Athletes with high salt concentration in their sweat are also prone to heat cramps.
- Sweating depletes the body's salt and fluids. Low salt level in the muscles can cause painful cramps.
- Heat cramps may also be a symptom of heat exhaustion.

Heat Exhaustion

Heat exhaustion is a form of HRI and can occur during exertion in heat or can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. The warning signs of heat exhaustion include:

- Heavy sweating
- Paleness
- Muscle cramps

- Tiredness
- Weakness
- Dizziness
- Headache
- Nausea or vomiting
- Rapid pulse
- Fainting

If heat exhaustion is not treated, it may progress to heat stroke.

Heat Stroke

Heat stroke is the most serious HRI and is **life threatening**. It occurs when the body becomes unable to control its temperature.

- Body temperature rises rapidly
- Sweat process fails
- Body is unable to cool down

Body temperature may rise to 106°F or higher within 10-15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided. Warning signs of heat stroke vary but may include:

- High body temperature
- Red, hot, and dry or moist skin
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Unconsciousness

Management of Heat Illness

1. Treatment of heat cramps if medical attention is not necessary:

- Stop all activity and sit quietly in a cool place.
- Drink water, clear juice, or a sports beverage.
- Do not perform strenuous activity for a little while after the cramps subside.
- The athlete should be assessed by the trainer to determine if he/she can perform at the level needed for successful participation.
- If the episode was acute or severe, the athlete's diet, rehydration practices, electrolyte consumption, fitness status, level of acclimatization, and use of dietary supplements should be reviewed and modified to reduce the risk of recurrence.

2. Treatment of heat exhaustion

- Remove from heat by moving into shade or air conditioning. Drink water, clear juice, or a sports beverage.
- Remove restrictive clothing, equipment, and helmets.

- Take a cool shower, bath, or sponge bath.
- Seek an air-conditioned environment.
- Avoid intense practice in heat for one day to ensure recovery from fatigue and dehydration.
- Athlete should be symptom-free and fully hydrated before returning to play.
- Recommend clearance from on-site athletic trainer before return to play.
- To avoid recurrence, be sure to rule out any underlying condition or illness that predisposed the athlete to an HRI.
- Correct any acclimatization and fitness level problems before player returns to full intensity training in heat.

3. Treatment of heat stroke: heat stroke is a life-threatening emergency!!!

- Have someone call for immediate medical assistance while you begin cooling the ill athlete. Response time will be critical.
- Get the sick athlete to a shady area.
- Remove restrictive clothing, equipment, and helmet.
- Rapidly cool the sick person by:
Immersing him or her in a tub of cool water or ice water or placing in a cool shower.
Spraying him or her with cool water from a garden hose.
Sponging the person with cool water.
Applying ice bags at the neck, armpit, and groin area.
Wrapping the person in a cool, wet sheet and fan him or her vigorously if the humidity is low.
- Monitor body temperature and continue cooling efforts until the body temperature drops to 101°F–102°F. Remove the athlete from the water to prevent overcooling once this is achieved.
- Give the sick athlete sips of cool water if alert.
- If emergency medical personnel are delayed, call the hospital emergency room for further instructions.
- The sick person should be transported to the hospital for observation even if all treatment on the field is successful.
- Student athlete must be cleared by a physician before returning to practice or games.

Prevention of Heat Related Illnesses

1) Fluid replacement

Cold water will be made available to all athletes for all practices and games. Per the National Athletic Trainers' Association Recommendations for Fluid Replacement ACPS will:

- o Educate athletes about the effects of adequate hydration on athletic performance, before during and after exertion.
- o Teach athletes how to monitor hydration status.
- o Educate and encourage athletes to participate in their own hydration protocols based on sweat rate, drinking preferences and person response to fluid quantities.
- o Implement hydration protocol (see table 2).
- o Educate coaching staff, who must mandate rehydration breaks during practices and competitions (see chart)

2) Acclimatization to Heat

With fall sports that start in the summer, practices will be designed in a progressive manner to result in a gradual acclimatization to heat over the course of 7 to 12 days, depending on the heat index. We will utilize the VHSL Fall Pre-Season Practice Guidelines as stated in the following link:
<https://drive.google.com/open?id=1PoIqmc1fZojzL9v0e2A8kzQYMYqR2h0J>

3) Modification of activity during high heat index heat and humidity measured by wet bulb thermometer or any other accepted heat index measuring instrument.

Athletic trainers will assess the heat and humidity conditions whenever a heat index has been issued or when the ambient temperature is **80 degrees or higher**. WBGT device will be used on each field (turf or grass) to determine heat conditions and appropriate practice adjustments if necessary. Below are 2 sets of guidelines for high heat and humidity.

Table 1: WBGT Activity and Rest Break Guidelines (adapted from the Georgia High School Association)

WBGT	Activity Guidelines	Rest Break Guidelines	Fluid Consumption
Under 82.0 GREEN	Normal activities	Provide at least 3 separate rest breaks each hour with a minimum duration of 3 minutes each	Insist that adequate fluid be consumed. Never restrict fluids
82.0 - 86.9 YELLOW	Use discretion for intense or prolonged exercise; watch at-risk players carefully	Provide at least 3 separate rest breaks each hour with a minimum duration of 4 minutes each	Insist at least 8 to 10 ounces fluid be consumed at every break.
87.0 – 89.9 ORANGE	Maximum outdoor practice time is 2 hours. <u>For Football</u> : players restricted to helmet, shoulder pads and shorts during practice and all protective equipment must be removed during conditioning activities. If WBGT rises to this level during practice, plays may continue to work out wearing football pants without changing to shorts	<u>For All Sports</u> : Provide at least 4 separate rest breaks each with a minimum duration of 4 minutes each	Insist at least 8 to 10 ounces fluid consumed at every break and rehydrate 24 ounces for every pound lost
90.0 – 92.0 RED	Maximum outdoor practice time is 1 hour. <u>For Football</u> : no protective equipment may be worn during practice, and there may be no outdoor conditioning activities	<u>For All Sports</u> : There must be 20 minutes of rest breaks distributed throughout the hour of practice	Insist that 8 to 10 ounces of fluid be consumed at every break
Over 92.0 BLACK	No outdoor workouts. Delay practice until a cooler WBGT level is reached		

Table 2: Activity During Extreme Heat and Humidity Using Wet Bulb Thermometer (from Fairfax Co.)

Level	FWBT	Duration	Attire	Fluid Consumption	Comments
1	Less than 60°	3 hours max	Full gear	Insist that adequate fluid be ingested	Never restrict water consumption
2	60.1° – 65.9°	3 hours max	Full gear	Insist that adequate fluid be ingested	Provide minimum of 2 water breaks per hour
3	66° – 74.9°	3 hours max	Full gear	Insist that 4 — 6 oz minimum fluid be ingested every 20 minutes	Provide minimum of 3 water breaks per hour
4	75° – 76.9°	3 hours max	Remove helmets unless active in drill	Insist that 6 — 8 oz - minimum fluid be ingested every 20 minutes	Monitor athletes, rest as needed
5	77° – 78.9°	3 hours max Every 45 minutes of work > 15 minutes or rest per hour	Protective equipment removed for non-contact drills	Insist that 8 — 10 oz fluid be ingested every 15 minutes	Removal of helmet unless active in drill, removal of pads when teaching or noncontact portions of practice exceed 10 minutes in length
6	79° – 80.9°	3 hours max Every 45 minutes of work > 15 minutes or rest per hour	Shirts and shorts only No helmets or equipment	Insist that 8 — 10 oz fluid be ingested every 15 minutes	Reduce intensity of activity, no equipment or helmets
7	81° - up	NO OUTDOOR PRACTICE		Re-hydrate 24 oz. for every pound of body weight loss per day	Practices conducted indoors must follow the heat policy

Education

ACPS will require that coaches, athletic trainers, students and their parents receive training annually on the following:

- Recognizing the signs and symptoms of heat illness
- Strategies to reduce the risk of heat illness
- How to treat heat illness
- How and when to seek medical attention for severe heat illness

Roles and Responsibilities

1) Athletic Directors

- Ensure that coaches, students and parents receive educational materials on an annual basis
- Ensure that coaches undergo online training
- Ensure that trained individuals (see below) are present for every school-sponsored practice or game
- Ensure that guidelines are being followed
- Ensure that wet bulb measurements are taken whenever a heat index is issued or other conditions warrant it
- Ensure that supplies for the provision of water are available
- Ensure that functioning calibrated wet bulb thermometers are available

2) Coaches

- Complete a Heat Illness Prevention online education course.
- Follow guidelines in tables for work/rest/hydration ratios
- Modify intensity of practices in conditions of heat
- Encourage athletes to manage their own hydration
- Ensure water is available at all practices and games
- Develop practice/training protocols for gradual heat acclimatization for seasons that start in the summer or during a periods of heat.
- Be able to recognize the signs of HRI and remove player from activity as warranted.
- An athlete who has continued symptoms of HRI should not be left alone and should not be allowed to drive him/herself home. Please note: the student doesn't necessarily have to be recovered enough to play, but should not be released if he/she has symptoms that might lead to disorientation

3) Athletic Trainers

- Ensure up-to-date training in current HRI prevention, recognition and treatment
- Make measurements of playing field surfaces when NOAA issues heat advisory and advise coaches about acceptable levels of practice intensity. Measurements are to be taken prior to practices and each subsequent hour for continued assessment of heat. All reading should be documented.
- Ensure that an adequate amount of cold water is available and a hygienic means for athletes to consume it
- Treat athletes showing signs of HRI
- Communicate with parents after treating an athlete for HRI
- Do not leave athlete with continued symptoms of HRI alone and do not allow the athlete to drive him or herself home.

4) Athletes

- Review HRI handout

- Take responsibility for own hydration and nutrition before, during and after practices
- Wear weather appropriate clothing
- Bring water bottles to practice and games
- Report symptoms of HRI to coaches/trainers (cramps, light-headedness, nausea, etc.)
- Report conditions that could increase susceptibility to HRI to trainer when under heat advisory (illness, medications, history of HRI)
- Don't hold captains' practices when under heat advisory

5) Parents

- Review HRI handout
- Recognize signs of HRI and monitor student athlete at home after exertion in conditions of heat
- Reinforce student athlete's hydration before, during and after practice
- Discourage pick-up games and work-outs in high heat/humidity
- Encourage adequate sleep, hydration and nutrition.

ACPS Practice Guidelines with Certified Athletic Trainers

Athletic Directors and contracted providers of Certified Athletic Trainers will work together to provide the maximum amount of coverage possible. All scheduled practices (In-season and Out-of Season) must have approval by the Athletic Director. In order to hold an approved practice, we will follow the direction of Level 1 or Level 2 as described below.

Level 1

Practice must only be held with a Certified Athletic Trainer on the school's campus.

- Outdoor out-of-season practices and/or conditioning during summer. (*Summer is defined as the first day after ACPS' last day of school and the day before the first VHSL fall sports practice date.*)
- Indoor and outdoor in-season practices during VHSL sport seasons during traditional practice hours (4-7pm)

Level 2

ACPS Coaches who in addition to having completed all Annual requirements, and having also completed the Child Abuse Prevention, CPR/AED & First Aid training, VHSL Component (Handbook) and Coaching Principles, may hold practice without a Certified Athletic Trainer present.

- Out-of-season practices and/or conditioning not covered by Level 1
- Practices during VHSL sport seasons during non-traditional practice hours (*ex. Mornings, Weekends, Holidays*)
- Practices at off-campus locations

❖ See Appendix 3

All out-of-season practices are subject to ACPS Out-of-Season Practice Guidelines.

NOTE: The VHSL Out-of-Season rule 27-7-1 is below, however, the guideline for ACPS OSP is more restrictive than VHSL. In addition to following the VHSL designated "dead periods", ACPS teams follow a "15-15-10" rule. This limits OSP sport specific practices to two active windows of 15 days

during the school year and one active window of 10 days during the summer. A sample of the 2017-18 ACPS OSP guidelines is available at the following link:

<https://drive.google.com/open?id=1It8XmwYkz4bKO2q-Yp989a-rhZw73UPC>

27-7-1 OUT-OF-SEASON PRACTICE RULE - All VHSL member school sponsored athletic teams are restricted from any organized activities during designated "dead periods." Out-of-season dead periods shall be 10-day periods beginning with the first permissible practice date of a sports season as published in the VHSL Calendar. A summer "dead period" for all athletic teams shall be from Sunday through Saturday of the week containing July 4th (Week 52 or Week 1 of the NFHS Standardized Calendar). During dead periods, no coaching, observing or contact between a coach(s) or player(s) may occur in the VHSL member school sponsored athletic team or activity involved. There may be no VHSL member school sponsored practice, open facilities, weight training/conditioning, out of season league(s) or member school sponsored clinics/camps. Outside of dead periods, all VHSL member school sponsored activities may occur on any day except Sundays. Team vs. team competition may occur only in camps or leagues. Schools, districts and/or regions may impose more restrictive guidelines. VHSL catastrophic insurance is not applicable to any out-of-season activities.

Resources

NOAA Heat Index Calculator

- <http://www.wpc.ncep.noaa.gov/html/heatindex.shtml>

NOAA Heat Index Chart

- see Appendix 1 below

National Federation of State High School Association training materials

- <http://www.theheatfactor.com/>
- <https://www.nfhs.org/media/1015650/2015-nata-heat-illness-handout.pdf>
- <https://www.nfhs.org/media/1015695/ksi-5-pillars-of-exertional-heat-stroke-prevention-2015.pdf>

National Trainers Association heat resources

- <https://www.nata.org/practice-patient-care/health-issues/heat-illness>

Parent and coach training

- <https://www.nata.org/sites/default/files/heat-illness-parent-coach-guide.pdf>

OSHA Training

- <http://www.dir.ca.gov/dosh/documents/Heat-Illness-Prevention-Training-2015.pdf>

CDC Training

- https://www.cdc.gov/nceh/hsb/extreme/Heat_Illness/index.html

NOAA's National Weather Service

Heat Index

Temperature (°F)

Relative Humidity (%)	Temperature (°F)															
	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution
 Extreme Caution
 Danger
 Extreme Danger

BEAT THE HEAT

Summer's high temperatures put student athletes at increased risk of heat illness. There are several types of heat illness. They range in severity, from heat cramps and heat exhaustion, which are common but not severe, to heat stroke, which can be deadly. Although heat illnesses can be fatal, death is preventable if they're quickly recognized and properly treated.

DEHYDRATION AND HEAT ILLNESSES



As a rule-of-thumb, most athletes should consume 200 to 300 milliliters of fluid every

15 MINUTES
OF EXERCISE.

It takes only **30 MINUTES** for cell damage to occur with a core body temperature of 105 degrees.



Currently, 13 states have heat-acclimatization policies, for secondary school athletics with New Jersey being the first.



Exertional heat stroke is one of the top three killers of athletes and soldiers in training.

- From 2010-15, 20 athletic heat stroke fatalities were reported.
- It takes seven to 14 days for a body to adapt to exercising in the heat.
- Dehydration at levels of 3 to 4 percent body mass loss can reduce muscle strength by an estimated 2 percent.

SAFETY TIPS



Have sports drinks on hand for workout sessions lasting longer than an hour.

Keep beverages cold – cold beverages are consumed 50 percent more than warm beverages.

Hydrate before, during and after activity.

Remove unnecessary equipment, such as helmets and padding, when environmental conditions become extreme.



Clothing worn by athletes should be light colored, lightweight and protect against the sun.

- For the first week or so, hold shorter practices with lighter equipment so players can acclimate to the heat.
- Follow a work-to-rest ratio, such as 10-minute breaks after 40 minutes of exercise.
- Get an accurate measurement of heat stress using a wet-bulb globe temperature, which accounts for ambient temperature, relative humidity and radiation from the sun.
- If someone is suffering from exertional heat stroke, remember to cool first and transport second.
- Have large cold tubs ready before all practices and games in case cold water immersion is needed to treat exertional heat stroke.

SIGNS OF MINOR HEAT ILLNESS



Dizziness

Cramps, muscular tightening and spasms



Lightheadedness, when not associated with other symptoms

EARLY WARNING SIGNS OF EXERTIONAL HEAT STROKE

Headache, dizziness, confusion and disorientation

Excessive sweating and/or flushing

Fatigue

Nausea and/or vomiting

Chills and/or goose bumps

SIGNS OF EXERTIONAL HEAT STROKE



Core body temperature of more than 105 degrees



Signs of nervous system dysfunction, such as confusion, aggression and loss of consciousness



Increased heart rate

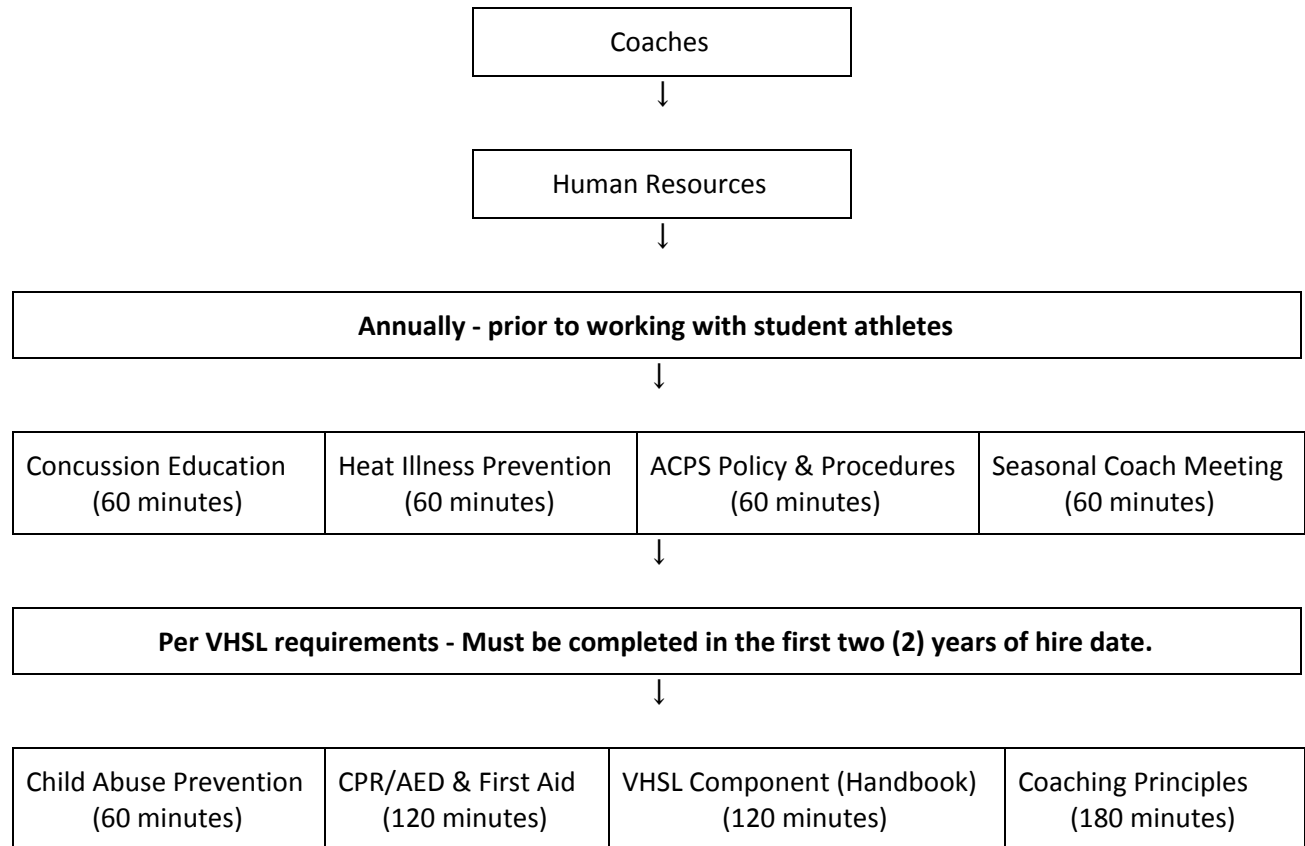
Rapid breathing

Seizures

Low blood pressure

Appendix 3

Coaches Hiring & Training Flow Chart



Level 1

Practice must only be held with a Certified Athletic Trainer on the school's campus.

- Outdoor out-of-season practices and/or conditioning during summer. (*Summer is defined as the first day after ACPS' last day of school and the day before the first VHSL fall sports practice date.*)
- Indoor and outdoor in-season practices during VHSL sport seasons during traditional practice hours (4-7pm)

Level 2

ACPS Coaches who in addition to having completed all Annual requirements, and having also completed the Child Abuse Prevention, CPR/AED & First Aid training, VHSL Component (Handbook) and Coaching Principles, may hold practice without a Certified Athletic Trainer present.

- Out-of-season practices and/or conditioning not covered by Level 1
- Practices during VHSL sport seasons during non-traditional practice hours (*ex. Mornings, Weekends, Holidays*)
- Practices at off-campus locations