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

<table>
<thead>
<tr>
<th>WBGT Level</th>
<th>Activity Guidelines</th>
<th>Rest Break Guidelines</th>
<th>Fluid Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Under 82.0</strong> GREEN</td>
<td>Normal activities</td>
<td>Provide at least 3 separate rest breaks each hour with a minimum duration or 3 minutes each</td>
<td>Insist that adequate fluid be consumed. Never restrict fluids</td>
</tr>
<tr>
<td><strong>82.0 - 86.9 YELLOW</strong></td>
<td>Use discretion for intense or prolonged exercise; watch at-risk players carefully</td>
<td>Provide at least 3 separate rest breaks each hour with a minimum duration of 4 minutes each</td>
<td>Insist at least 8 to 10 ounces fluid be consumed at every break.</td>
</tr>
<tr>
<td><strong>87.0 – 89.9 ORANGE</strong></td>
<td>Maximum outdoor practice time is 2 hours. For Football: 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</td>
<td>For All Sports: Provide at least 4 separate rest breaks each with a minimum duration of 4 minutes each</td>
<td>Insist at least 8 to 10 ounces fluid be consumed at every break and rehydrate 24 ounces for every pound lost</td>
</tr>
<tr>
<td><strong>90.0 – 92.0 RED</strong></td>
<td>Maximum outdoor practice time is 1 hour. For Football: no protective equipment may be worn during practice, and there may be no outdoor conditioning activities</td>
<td>For All Sports: There must be 20 minutes of rest breaks distributed throughout the hour of practice</td>
<td>Insist that 8 to 10 ounces of fluid be consumed at every break</td>
</tr>
<tr>
<td><strong>Over 92.0 BLACK</strong></td>
<td>No outdoor workouts. Delay practice until a cooler WBGT level is reached</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Level</th>
<th>FWTB</th>
<th>Duration</th>
<th>Attire</th>
<th>Fluid Consumption</th>
<th>Comments</th>
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<tbody>
<tr>
<td>1</td>
<td>Less than 60°</td>
<td>3 hours max</td>
<td>Full gear</td>
<td>Insist that adequate fluid be ingested</td>
<td>Never restrict water consumption</td>
</tr>
<tr>
<td>2</td>
<td>60.1° – 65.9°</td>
<td>3 hours max</td>
<td>Full gear</td>
<td>Insist that adequate fluid be ingested</td>
<td>Provide minimum of 2 water breaks per hour</td>
</tr>
<tr>
<td>3</td>
<td>66° – 74.9°</td>
<td>3 hours max</td>
<td>Full gear</td>
<td>Insist that 4 — 6 oz minimum fluid be</td>
<td>Provide minimum of 3 water breaks</td>
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</tbody>
</table>
### Temperature Ranges and Action Items

<table>
<thead>
<tr>
<th>Temperature Range</th>
<th>Action Items</th>
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<tbody>
<tr>
<td>75° – 76.9°</td>
<td>3 hours max</td>
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<tr>
<td></td>
<td>Remove</td>
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<tr>
<td></td>
<td>helmets</td>
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<td>unless</td>
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<td></td>
<td>active in</td>
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<td></td>
<td>drill</td>
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<td></td>
<td>Insist that</td>
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<tr>
<td></td>
<td>6 — 8 oz</td>
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<tr>
<td></td>
<td>minimum fluid</td>
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<td></td>
<td>be ingested</td>
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<td></td>
<td>every 20</td>
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<td></td>
<td>minutes</td>
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<tr>
<td></td>
<td>per hour</td>
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<table>
<thead>
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<th>Temperature Range</th>
<th>Action Items</th>
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</thead>
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<td>77° – 78.9°</td>
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<td>Every 45</td>
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<td></td>
<td>work</td>
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<td>&gt; 15 minutes</td>
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<td></td>
<td>or rest per</td>
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<td>equipment</td>
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<td>removed for</td>
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<tr>
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<td>non-contact</td>
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<tr>
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<td>drills</td>
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<tr>
<td></td>
<td>Insist that</td>
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<tr>
<td></td>
<td>8 — 10 oz</td>
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<tr>
<td></td>
<td>fluid</td>
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<tr>
<td></td>
<td>be ingested</td>
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<td>every 15</td>
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<td>minutes</td>
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<td>Removal of</td>
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<td>helmet</td>
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<td>active in</td>
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<td>drill,</td>
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<td>teaching or</td>
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<td>portions of</td>
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<td>exceed 10</td>
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<td>minutes in</td>
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<td>length</td>
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<table>
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<th>Temperature Range</th>
<th>Action Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>79° – 80.9°</td>
<td>3 hours max</td>
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<tr>
<td></td>
<td>Every 45</td>
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<td></td>
<td>minutes of</td>
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<td>Shirts and</td>
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<td>shorts only</td>
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<td>No helmets</td>
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<td>Insist that</td>
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<td>8 — 10 oz</td>
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<td>fluid</td>
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<td></td>
<td>be ingested</td>
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<tr>
<td></td>
<td>every 15</td>
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<tr>
<td></td>
<td>minutes</td>
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<tr>
<td></td>
<td>Reduce intensity of activity, no equipment or helmets</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature Range</th>
<th>Action Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>81° - up</td>
<td>NO OUTDOOR PRACTICE</td>
</tr>
</tbody>
</table>

### 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=1lt8XmwYkz4bKO2q-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

NOAA Heat Index Chart
● see Appendix 1 below

National Federation of State High School Association training materials
● http://www.theheatfactor.com/


National Trainers Association heat resources
● https://www.nata.org/practice-patient-care/health-issues/heat-illness

Parent and coach training

OSHA Training

CDC Training

Appendix 1
NOAA's National Weather Service

Heat Index

Temperature (°F)

<table>
<thead>
<tr>
<th>Relative Humidity (%)</th>
<th>80</th>
<th>82</th>
<th>84</th>
<th>86</th>
<th>88</th>
<th>90</th>
<th>92</th>
<th>94</th>
<th>96</th>
<th>98</th>
<th>100</th>
<th>102</th>
<th>104</th>
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<td>40</td>
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Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- Caution
- Extreme Caution
- Danger
- Extreme Danger
BEAT THE HEAT

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.

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

SIGNS OF MINOR HEAT ILLNESS

- Dizziness
- Cramps, muscular tightening and spasms
- Lightheadedness, when not associated with other symptoms

EARLY WARNING SIGNS

- Headache, dizziness, confusion and disorientation
- Excessive sweating and/or flushing
- Fatigue
- Nausea and/or vomiting
- Chills and/or goose bumps

Sources: Sankey, Stringer Institute, American Medical Society for Sports Medicine, NATA

Appendix 3
Coaches Hiring & Training Flow Chart

Coaches

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Human Resources

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Annually - prior to working with student athletes

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- Concussion Education (60 minutes)
- Heat Illness Prevention (60 minutes)
- ACPS Policy & Procedures (60 minutes)
- Seasonal Coach Meeting (60 minutes)

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Per VHSL requirements - Must be completed in the first two (2) years of hire date.

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- Child Abuse Prevention (60 minutes)
- CPR/AED & First Aid (120 minutes)
- VHSL Component (Handbook) (120 minutes)
- Coaching Principles (180 minutes)

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