Emergency Action Plan
Heat and Cold Safety
Upper Perkiomen School District

High School

2 Walt Road

Pennsburg, PA 18073

Phone: (215)-679- 5935

upsd.org

Middle School

910 Montgomery Ave

Pennsburg, PA 18073

Phone: (267)-313- 4800

upsd.org

4/5 Building

510 Jefferson Street

East Greenville, PA 18073

Phone: (215)-679-6288

upsd.org

Athletic Office

2 Walt Road
Pennsburg, PA 18074

Phone: 215.679.5935 ext. 7133
Upperperkathletics.com

Table of Contents

Purpose of Emergency Action Plan....3

Emergency Equipment....3

Emergency Communication....4

Activating EMS....4

Athletic Department Contact Information....5

Heat Guidelines....6

Hydration....7

Clothing and Sunscreen....7-8

Heat Acclimatization....8

Heat Illness Protocol....8

Heat Illness Defined....9

Sickle Cell Trait....12

Cold Guidelines....13

Prevention Methods for Cold Stress....14

Cold Stress Protocol....15

Cold Stress Defined....16

Resources....17

Purpose of the Emergency Action Plan: Heat and Cold Safety

The northeast United States is exposed to both extremes of heat and cold throughout the year. The purpose of this plan is to create a guide to follow in the case that any emergency situation pertaining to heat or cold arises. This plan also serves as an educational guide to increase preparedness to help prevent emergencies due to heat and cold stress.

Emergency Equipment

Emergency Equipment for Heat Emergencies

- Ice towels
- Cold whirlpool

Emergency Equipment for Cold Emergencies

- Room temperature to warm water
- Heat packs
- Warm whirlpool

Emergency Communication

- If the Certified Athletic Trainer is on-site, the Coach will call the Certified Athletic Trainer. It will be the Certified Athletic Trainer's responsibility to take care of the athlete.
- If it is an emergency, heat stroke or hypothermia is suspected, the Coach will activate EMS first.

Activating EMS

- EMS should be activated if any loss of consciousness, deteriorating symptoms, discoloration of the skin, or suspected signs of heat stroke are suspected.
- If heat stroke is suspected, the athlete must be cooled first, and transport second.

*Dial ***-911** if calling from a school landline or **911** if calling from a cell phone*

When Calling EMS, Provide:

- Name, address of location, telephone number of caller
- Number of injured student athletes and the condition of the athlete(s)
- First aid provided thus far
- Specific directions to the emergency scene
- Other asked information

***Follow directions from the appropriate High School or Middle School Emergency Action Plan.

Athletic Department Contact Info

Athletic Trainers (Cell phone numbers given to AD and coaches)

High School:

Charles Witman	(215)-679-7961	ext. 7015
Haley Bylina	(215)-679-7961	ext. 7015

Middle School:

Maryrose DiScipio	(267)-313-4800	ext. 6139

4/5 Building:

Maryrose DiScipio	(215)-679-6288	ext. 7511

Athletic Office

Athletic Director: Robert Kurzweg III, CMAA	(215)-679-5935	ext. 7124
Administrative Assistant: Sarah Conrad	(215)-679-6065	ext. 7133

High School Administrators:

Principal: Dr. Frank Flanagan	(215)-679-5935
Assistant Principal: Todd Amsler	(215)-679-5935
Assistant Principal: Jennifer Senavaitis	(215)-679-5935

Middle School Administrators:

Principal: Karen Haney	(267)-313-4800
Assistant Principal: Brian Callen	(267)-313-4800

4-5 Center Administrator:

Principal: Arthur Vigilante	(215)-679-6288

Heat Guidelines

The Certified Athletic Trainer or Athletic Director will monitor the heat index. The Certified Athletic Trainer and/or Athletic Director reserves the right to monitor and modify practice schedules due to heat.

The following recommendations should be taken into consideration in monitoring and modifying practice schedules: [1]

Temperature	**Warning**	**Guidance** *(Italicized – guidance for non-acclimatized athletes)*
< 78.0° F	—-	Normal activity. *Extreme exertion may precipitate heat illness*.
78.0° F — 82.0° F	**Green**	Normal activity. Pay special attention to at-risk individuals. *Use discretion in planning intense exercise.*
82.1° F – 86.0° F	**Yellow**	Use discretion in planning intense physical activity. Pay special attention to at-risk individuals. Watch for early signs and symptoms of heat illness. *Limit exercise to 1 hour; limit total outdoor exercise to 2.5 hours.*
86.1° F – 89.9° F	**Red**	Limit intense exercise to 1 hour; limit total outdoor exercise to 4 hours. Watch for early signs and symptoms of heat illness. *Stop outdoor practice sessions and outdoor physical conditioning.*
≥ 90° F	**BLACK**	Cancel all outdoor exercise involving physical exertion. *Cancel all outdoor exercise requiring physical exertion.*

Hydration

The following hydration recommendations should be taken into consideration when practicing in the heat: [1]

	Workload – Hydration Frequency (Work/Rest) /Amount of Water per Hour		
Temperature	**Easy**	**Moderate**	**Hard**
< 79.9° F	No limit / 0.5 qt	No limit / 0.75 qt	40/20 min. / 0.75 qt.
80.0° F – 84.9° F	No limit / 0.5 qt	50/10 min. / 0.75 qt	30/30 min. / 1 qt
85.0° F – 87.9° F	No limit / 0.75 qt	40/20 min. / 0.75 qt	30/30 min. / 1 qt
88.0° F – 89.9° F	No limit / 0.75 qt	30/30 min. / 0.75 qt	40/20 min. / 1 qt
≥ 90.0 ° F	50/10 min. / 1 qt	20/40 min. / 1 qt	10/50 min. / 1 qt

Athletes should replenish 150 percent of fluids lost during exercise to restore normal hydration levels (euhydration). Diet, salt consumption, and other factors should be considered when rehydrating. When exercising for long durations, athletes should incorporate sports drinks containing electrolytes into their rehydrate routine. If athletes do not know how many liters of fluid they lost during exercise, drinking to thirst is a safe plan to follow to prevent overdrinking [2]

Clothing and Sunscreen

Thin, lightweight, and lightly colored clothing (e.g, short sleeves, shorts, and light socks) should be worn in heat, especially when acclimating to the heat.[1]
All athletes should wear sunscreen to prevent damaging effects from the sun's ultraviolet radiation. Sunscreen should be applied hourly. Athletes at risk for skin cancer (those with

fair complexion, light hair, blue eyes, and easily burnt skin) should wear at least an SPF 30 sunscreen [1]

Heat Acclimation

A gradual heat acclimatization is critical to preventing heat illness.[1] Athletes should be monitored during this process for early signs and symptoms of heat illness. Upper Perkiomen High School and Middle School adhere to the latest PIAA heat acclimatization recommendations.

All football athletes in grades 9-12 must complete a three to five-day heat acclimatization period. This acclimatization period typically begins the week immediately before the two-week preseason. Practice times and equipment will be modified during this period. Football athletes are only permitted to wear helmets and shoulder pads during heat acclimatization. For the football athletes completing their heat acclimatization the week before the two-week preseason, practices will be limited to no longer than 3 hours in length with no less than a two-hour break in between. Practices days one, three, and five are limited to five hours in length. Practices days two and four are limited to three hours in length.[3]

All football athletes in grades 7-8 must complete three consecutive days of heat acclimation. Equipment and practice modifications are implemented. Equipment modifications include only wearing a helmet, shoulder pads, and football shoes. Practices for the first three days of heat acclimatization must be non-contact. No middle school athletes can attend the high school heat acclimatization practices.[3]

Heat Illness Protocol

If signs and symptoms of heat illness are observed and/or reported, the athlete should immediately be removed from the practice/scrimmage/game.

- Certified Athletic Trainer onsite:
    - Call the certified athletic trainer onsite immediately.
    - If signs and symptoms of heat stroke are suspected, call **911** or ***-911** before calling for the athletic trainer. In incidents of heat stroke, it is imperative that the athlete is cooled first and transported second.
        - If heat stroke is suspected, the temperature of the athlete should be monitored.

    - The athlete should be moved to a cool area (e.g., indoors, shade).
    - Cold towels, indoors, and cold whirlpools are options for cooling.
- No Certified Athletic Trainer on-site
    - Move the athlete to a cool location.
    - If any signs and symptoms of heat stroke are present, call **911** or ***-911** from a school telephone. Immediately begin to cool the athlete. The athlete must be cooled first and transported second. The temperature of the athlete should be monitored.
    - If applicable, have the athlete drink water.

Heat Illness Defined

Heat Rash	*Also called prickly heat – red, raised rash with a prickling and tingling sensation.*[1]
Heat Syncope	*Heat collapse occurs due to rapid physical fatigue from over-exposure to heat. Symptoms include dizziness, fainting, and nausea.*[1]
Exertional Heat Cramps	*Painful muscle spasms occur due to an excessive loss of water and electrolytes.*[1]
Exertional Heat Exhaustion	*Results from dehydration. Mild hyperthermia, rectal temperature less than 104°F, no evidence of central nervous system (CNS) dysfunction. Signs and symptoms include pale, cold clammy skin, profuse sweating, stomach cramps with*

	nausea, vomiting, diarrhea, headache, persistent muscle cramps, dizziness, loss of coordination, and a weak, rapid pulse.[1]
Exertional Heat Stroke	***Severe and life-threatening emergency.*** *This is the most severe form of heat illness. Signs and symptoms include temperature 104°F or greater, hot flushed skin, fast, shallow breathing, strong, rapid pulse, nausea, vomiting, diarrhea, headache, dizziness, and weakness. CNS dysfunction: altered consciousness, seizures, confusion, emotional instability, irrational behavior, decreased mental acuity.*[1]
Exertional Hyponatremia	*Fluid and electrolyte imbalance. Caused by drinking too much fluid, sodium concentrations in the body decrease. Signs and symptoms include a worsening headache, nausea, vomiting, swelling of the hands and feet, lethargy, agitation, and low blood sodium.* ***If CNS symptoms are present, this is an emergency.***

Malignant Hyperthermia	*Rare, genetic muscle disorder. Hypersensitivity to anesthesia and exercise occurs in hot environments. Muscle breakdown causes symptoms similar to heat stroke; also, muscle pain after exercise and elevated temperature 10-15 minutes post-exercise.*[1]
Acute Exertional Rhabdomyolysis	*Sudden breakdown of skeletal muscle. Characterized by myoglobin in the urine. Signs and symptoms include a gradual onset of muscle weakness, swelling, pain accompanied by darkened urine, and renal dysfunction. Associated with sickle cell.* ***The athlete should be referred to a physician immediately.***[1]

Sickle Cell Trait

Sickle Cell Disease affects approximately 100,000 Americans. SCD can be present in an individual of ANY ethnicity, but is more common in some ethnicities. Athletes with SCD have red blood cells (RBCs) that sickle/crescent with an abnormal type of hemoglobin. Sickled cells have a harder time carrying the oxygen needed. A family history and blood test are needed to determine the presence of sickle cell anemia or if the sickle cell trait is present. Some athletes who have this trait do not experience signs and symptoms. Signs and symptoms include cramping, fatigue, inability to catch one's breath, overheating of the skin, a high fever, severe pain in the limbs and/or abdomen, and splenic syndrome. Athletes with the sickle cell trait should be allowed to build up slowly to training progressions, can be excluded from performance tests, encouraged to participate in exercise year-round, and set their own pace. In the event of a sickle cell episode, the athlete should be immediately removed from exercise, and vital signs should be taken immediately. If symptoms decline or the athlete shows concerning signs and symptoms, call **911** or ***-911** from a school phone and attach an AED immediately. Medical staff should be told about the sickle cell trait and the expected explosive rhabdomyolysis and grave metabolic complications.[1,5]

Cold Guidelines

The Certified Athletic Trainer and/or the Athletic Director will monitor the cold by monitoring the wind chill. The Certified Athletic Trainer and/or Athletic Director reserves the right to monitor and modify practice schedules due to the cold.

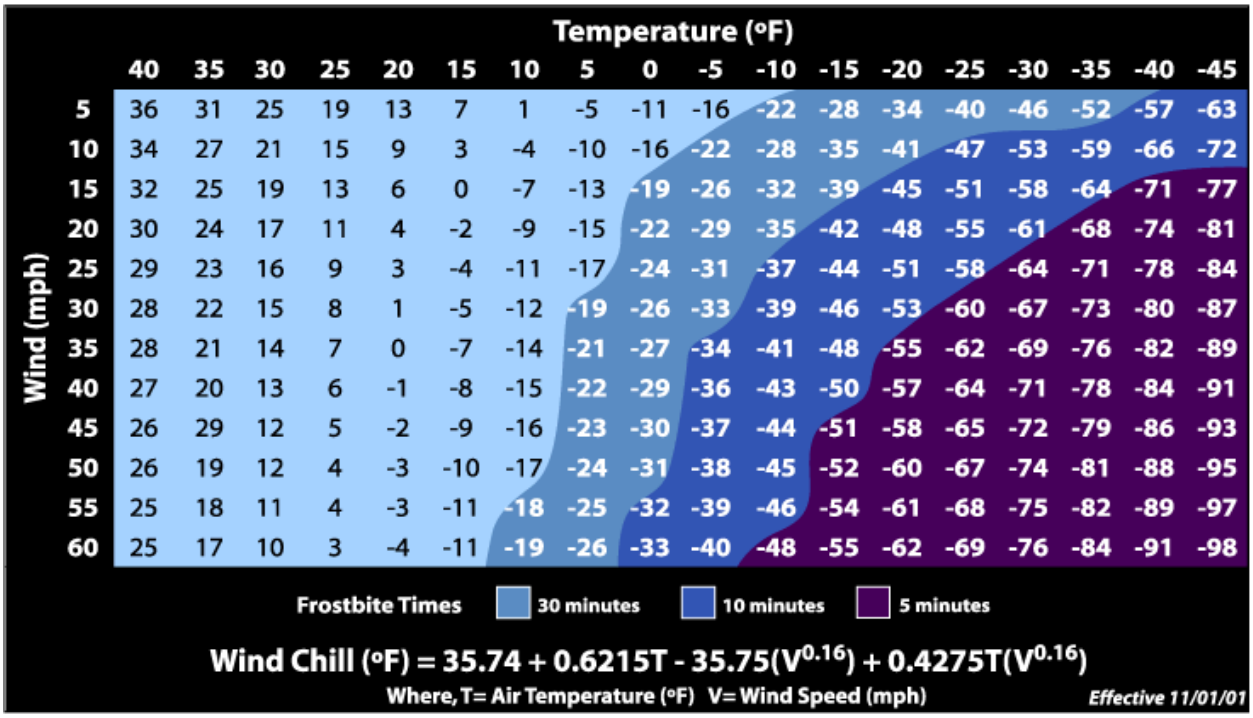
The following recommendations should be taken into consideration in monitoring and modifying practice schedules: [7, 8, 9]

Wind Chill Temperature	**Practice Length (Outside Practice /Inside Warm-Up)**	**Recommendations**
> 30° F	No restrictions	Wear appropriate clothing for the weather.
30.0° F – 25.1° F	45 minutes / 10 minutes	Wear appropriate clothing. Be aware of the potential for cold injury.
25.0° F – 15.1° F	30 minutes / 10 minutes	Cover as much of the exposed skin as practical. Wear additional clothing/layers.
15.0° F – 5.1° F	15 minutes / 10 minutes	Consider modifying activity to limit cold exposure.
≤ 5° F	**No outside practices are permitted.**	

You can use this graph to help determine wind chill, or the following link: [7, 8]

https://www.weather.gov/epz/wxcalc_windchill

Wind Chill Chart



Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Prevention Methods for Cold Stress

When exercising in the cold, athletes should wear several thin layers of clothing. Athletes should cover their head, neck, and hands when exercising in the cold. Athletes should try to warm the air they breathe by covering their nose with a scarf. Athletes should try to stay as dry as possible when exercising in the cold. Polypropylene, wool, or other fabrics are good choices of fabric to help wick moisture away and keep the body cool. Try to stay away from cotton.

Athletes should warm up thoroughly and keep warm until practice/competition. Athletes should hydrate to help regulate body heat. Hydrating in the cold is just as important as hydrating in the heat. Athletes should never train alone.[6]

Cold Stress Protocol

If the Certified Athletic Trainer is onsite:

- Check for signs and symptoms of hypothermia. If CNS symptoms are present or the patient is unconscious act as a first responder if certified in: First aid, CPR, and AED if needed.
    - Call **911** or ***-911** from a school telephone.
    - Designate someone to call the Certified Athletic Trainer after acting as a first responder
- If no concerning hypothermia symptoms are present call for the athletic trainer.

If there is no Certified Athletic Trainer onsite:

- Check for signs and symptoms of hypothermia. If CNS symptoms are present or the patient is unconscious act as a first responder if certified in: First aid, CPR, and AED if needed. Call **911** or ***-911** from a school telephone.
- If the athlete is conscious and not displaying concerning signs and symptoms of hypothermia, move the athlete to a warm area. If clothing is wet or damp remove the appropriate layers. Allow the athlete to use heat packs or immerse the area in warm 100-110° F water. If appropriate, have the athlete drink hot drinks.

Cold Stress Defined

Frost Nip	*Affects the ears, nose, cheeks, chin, fingers, and toes. Occurs with high winds and/or cold. Skin appears firm at first with cold painless areas that peel off or blister 24-72 hours after exposure.*[1]
Frostbite	*Chilblains, prolonged exposure to the cold. Signs and symptoms include skin redness, swelling, tingling and pain in toes and fingers.* *Superficial frostbite – skin and subcutaneous tissue. Skin appears pale, hard, cold, and waxy. Rewarm by immersing the area in warm water 100-110° F. Common sensation is numbness prior and stinging after rewarming the area.* *Deep Frostbite – Serious injury. Deep tissues. Immediate hospitalization. Signs and symptoms include discoloration of the skin, cold hard pale skin, pale or white tissue, numbness. Rapid rewarming techniques include hot drinks, heating pads, temperature should be warm 100-110° F.*[1]
Trench Foot	Wrinkling of the skin of the feet. Prolonged exposure to cold, damp conditions.[9]
Hypothermia	Typically a decrease in body temperature below 95° F. 95-98.6° F – Mild hypothermia. 90-94° F – Moderate hypothermia. Below 90° F severe hypothermia. If Moderate and/or severe hypothermia is suspected, call **911** or ***-911** from a school telephone.

Air Quality Guidelines

Due to the harmful components of air pollutants affecting athletes with pre-existing cardiac or pulmonary conditions, special considerations should be given for this population in preventing possible acute medical emergencies related to poor air quality. St. Luke's University Sports Medicine recommends the following guidelines when assessing safety of outdoor activities during poor air quality conditions:

Air Quality Index	Who Needs to be Concerned?	What Should I Do?
Good 0-50	It's a great day to be active outside.	
Moderate 51-100	Some people who may be unusually sensitive to particle pollution.	**Unusually sensitive people:** *Consider reducing* prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier. **Everyone else:** It's a good day to be active outside.
Unhealthy for Sensitive Groups 101-150	Sensitive groups include **people with heart or lung disease, older adults, children and teenagers.**	**Sensitive groups:** *Reduce* prolonged or heavy exertion. It's OK to be active outside, but take more breaks and do less intense activities. Watch for symptoms such as coughing or shortness of breath. **People with asthma** should follow their asthma action plans and keep quick relief medicine handy. **If you have heart disease:** Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your health care provider.
Unhealthy 151 to 200	**Everyone**	**Sensitive groups:** *Avoid* prolonged or heavy exertion. Move activities indoors or reschedule to a time when the air quality is better. **Everyone else:** *Reduce* prolonged or heavy exertion. Take more breaks during all outdoor activities.
Very Unhealthy 201-300	**Everyone**	**Sensitive groups:** *Avoid all* physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. **Everyone else:** *Avoid* prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when air quality is better.
Hazardous 301-500	**Everyone**	**Everyone**: *Avoid all* physical activity outdoors. **Sensitive groups:** Remain indoors and keep activity levels low. Follow tips for keeping particle levels low indoors.

Monitor Air Quality Conditions

- Athletics personnel (athletic trainer, athletic director, coach) must check air quality each day before any practice or event.
- Designated personnel should utilize reliable air quality monitoring systems (airnow.gov or the EPA Airnow mobile app) to monitor the likelihood of poor air quality.

Event Management

- Modification or cancellation of activities should be a collaborative effort between all responsible parties.
- The authorized person or their designee will notify all parties involved via Face to Face or mobile interactions.

Resumption of Activities

- Activities can be resumed without modifications once the AQI has reached a safe level (under 149) and all participants can safely and effectively participate in physical activity.

Treatment

If an athlete is having a medical emergency due to air quality, health care professionals will designate an individual to call EMS and activate Emergency Action Plan.

- Move patients to a safer structure (if needed)
- Evaluate and treat for apnea (cessation of breathing) and absence of heartbeat (cardiac arrest)
  - An AED should be applied to anyone who appears to be unconscious, pulseless, apneic
- Assess level of consciousness

Resources

1. Prentice, W. E. (2011). Principles of athletic training: a competency-based approach (14th ed.). New York, NY: McGraw-Hill Education.

2. McDermott, B. P., Anderson, S. A., Armstrong, L. E., Casa, D. J., Cheuvront, S. N., Cooper, L., . . . Roberts, W. O. (2017). National Athletic Trainers' Association Position Statement: Fluid Replacement for the Physically Active. Journal of Athletic Training, 52(9), 877-895. doi:10.4085/1062-6050-52.9.02

3. Zimmerman, J., & D. (2017). Football Pre-Season Heat-Acclimatization Guidelines. Retrieved from http://www.piaa.org/assets/web/documents/2017_Heat_Acclimatization_Guide.pdf

4. Casa, D. J., DeMartini, J. K., Bergeron, M. F., Csillan, D., Eichner, E. R., Lopez, R. M., . . . Yeargin, S. W. (2015). National Athletic Trainers' Association Position Statement: Exertional Heat Illnesses. Journal of Athletic Training, 50(9), 986-1000. doi:10.4085/1062-6050-50.9.07

5. Anderson, S., Eichner, E. R., et. Al. (2002). Consensus Statement: Sickle Cell Trait and the Athlete. Retrieved November 1, 2017, from https://www.nata.org/sites/default/files/sickle-cell-trait-and-the-athlete.pdf

6. P. (2017, September 5). 2017-2018 Sports Medicine Guidelines. Retrieved November 3, 2017, from http://www.piaa.org/assets/web/documents/Handbook%20-%20Section%20VI%20-%20Sports%20Medicine.PDF

7. Fijalkowski, H., & Parmer, K. (2017). Cold Weather Guidelines. Retrieved November 3, 2017, from http://www.millersville.edu/athletictraining/cold-weather.php

8. National Weather Service: National Oceanic and Atmospheric Administration (n.d.). Wind Chill Calculator. Retrieved November 3, 2017, from https://www.weather.gov/epz/wxcalc_windchill

9. Cappaert, T. A., Stone, J. A., Castellani, J. W., Krause, B. A., Smith, D., & Stephens, B. A. (2008). National Athletic Trainers' Association Position Statement: Environmental Cold Injuries. Journal of Athletic Training, 43(6), 640-658. Retrieved November 3, 2017, from http://natajournals.org/doi/pdf/10.4085/1062-6050-43.6.640?code=nata-site