

Environmental Considerations

An athletic activity can be suspended at the discretion of the Certified Athletic Trainer. If a danger exists that could endanger any or all of the participants of that activity (ex. lightning, heat, cold exposure). Refer to NCAA Guidelines and NATA Lightning Position Statement.

Lightning Safety Policy for Presbyterian College Athletics

The first preventative measure to mitigate the lightning hazard is for the coaching/athletic training staff to check the weather report each day before practice or an event. The second preventative measure is to know the location of the closest shelter to the athletic site and how long it takes to reach that shelter. A shelter is defined as any sturdy building that has metal plumbing or wiring, or both, to electrically ground the structure, (i.e. not a shed or shack). In the absence of a sturdy building, any vehicle with a hard metal roof, with the windows rolled up will suffice. The most convenient way to estimate how far away lightning activity is, is the “flash-to-bang” method. Simply stated, count the seconds between seeing the lightning (flash) and hearing the clap of thunder (bang). Divide this number by five to determine how far away (in miles) the lightning is occurring.

- 1) If the “flash-to-bang” interval is decreasing rapidly, and the storm is approaching your location, or if the “flash-to-bang” count approaches thirty seconds, all outdoor activities must cease. All persons must immediately leave the athletic site and seek safe shelter.
- 2) Locate shelter as quickly as possible.
- 3) Stay away from tall or individual trees, lone objects (i.e. light or flag poles), metal objects (i.e. metal fences or bleachers), standing pools of water, and open fields. Avoid being the tallest object on a field. Do not take shelter under a single tree.
- 4) If there is no safe shelter within reasonable distance, crouch in a thick grove of small trees surrounded by taller trees or in a dry ditch. The safe position is in the middle of field, away from trees/poles/metal objects, free from any metal objects (bats, umbrellas, etc.) in squat position, head tucked, arms over head, on balls of feet. Do NOT lie flat.
- 5) If you feel your hair stand on end or your skin tingle or hear crackling noises immediately crouch to minimize your body surface area.
- 6) Allow 30 minutes to pass after the last sound of thunder or flash of lightning before resuming any intercollegiate activity.
- 7) Do not use the telephone unless there is an emergency.
- 8) Lightning strike victims do not carry an electrical charge. CPR is safe for the responder and has been shown to be effective in riving lightning strike victims.

- 9) Pay much more attention to the lightning threat than to the rain. It need not be raining for lightning to strike.

*** It is imperative to begin and sustain CPR as soon as possible following a lightning strike. In triage situations this task becomes formidable, because first responders are trained to treat the “living” and leave the “dead” alone. In lightning trauma, the opposite is true. Studies have recorded patient revival following prolonged lack of pulse and apnea. First aid to the victims who appear dead can reverse cardiopulmonary arrest. Athletes who are struck by lightning and are unconscious have fixed and dilated pupils, cold extremities, as well as absent pulses and breath sounds; they must have CPR administered immediately, because these signs are common to victims who recover fully. An athletic trainer must also always consider possible cervical trauma when treating unconscious victims. Even though lightning strike victims do not carry an electrical charge, the rescuer should be concerned with the possibility of a second strike in the immediate area.

*** The decision to remove a team or individuals from an athletic site in the event of dangerous and imminent lightning activity is up to the coach supervising the activity if a certified athletic trainer is not on site. Whenever possible the certified athletic trainer will advise the coach supervising the activity as to the danger and proximity of the lightning threat. However, the responsibility still remains with the certified athletic trainer to remove the teams or individuals from a field or event site.

Exertional Heat Illness

Practice or competition in hot and/or humid conditions presents particular problems for the student-athletes. In these situations, heat illness as a result of heat stress, is a major concern of the Sports Medicine Staff. Education and consistent monitoring are necessary to prevent heat-related problems. Death from heat illness is rare but certainly possible. The following guidelines should be followed:

1. A complete medical history, including past history of heat illness, should be obtained prior to practice/competition.
2. Acclimatization over a period of 4-6 weeks should be strongly recommended. Athletes need this time to gradually increase aerobic activity and give their body an opportunity to acclimatize. Acclimatization also occurs during changes in altitude. Each exposure should reflect a gradual increase in duration and intensity of activity over the 4-6 week period, until an exposure is approximately equal to the expected time of a practice/competition.
3. When heat/humidity conditions are extreme it will be necessary to move practice/competition to another time of day that is cooler or adjust the duration and intensity. In June 2011 the following parameters and guidelines were adopted by the Sports Medicine Staff and are based on the Heat Index (weather.com and Weather Bug will be used to determine Heat Index):

- ❖ Heat Index of 95-99 Degrees
 - Provide ample amounts of water and opportunity to hydrate
 - Mandatory Breaks every 30 minutes for 5-10 minutes
 - Watch/Monitor athletes closely

- ❖ Heat Index of 100-104 Degrees
 - Recommend adjustment of schedule to a cooler time of day
 - Modify workout intensity/duration
 - Provide ample amounts of water and opportunity to hydrate
 - Mandatory Breaks every 30 minutes for 10 minutes in duration and breaks are to be held in a shaded location. Remove any equipment or items where feasible
 - Ice Towels for cooling should be available
 - Practice Length of 2 hours or less. Conditioning Sessions of no more than 1 hour total.
 - Watch/Monitor athletes closely. Remove any athlete with signs of heat distress
- ❖ Heat Index of Above 104 Degrees
 - Stop all outside activity and/or play

Heat Index Chart

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

With Prolonged Exposure and/or Physical Activity:			
Caution: Fatigue possible	Extreme Caution: Sunstroke, muscle cramps, and/or heat exhaustion possible	Danger: Sunstroke, muscle cramps, and/or heat exhaustion likely	Extreme Danger: Heat Stroke or Sunstroke likely

4. Heavy clothing, protective equipment, pads, and helmets impede upon the body's cooling mechanism by restricting methods of heat loss and sweating. Therefore, this equipment should be avoided, if possible, during times of extreme heat/humidity. Frequent rest periods are encouraged so the athletes can loosen their protective equipment and to allow the body to release some of the pent up heat.

5. Dark colored clothing should be avoided because it absorbs more solar energy than lighter colored clothing.
6. Athletes should be encouraged to avoid substances that contain diuretics and/or stimulants. These substances increase the risk of heat illness and furthermore may be NCAA banned substances.
7. Inadequate aerobic fitness, a history of heat illness, inadequate re-hydration, heart conditions, excess body fat, and inadequate acclimatization are conditions that should be taken into consideration as they make an athlete more susceptible to heat illness.
8. At all times during practice, training, competition, and especially during acclimatization, hydration should be maintained and encouraged.
9. Weakness, cramping, excessive sweating, fatigue, rapid and weak pulse, flushed or pale skin, nausea, lack of coordination/balance, incoherency, and cessation of sweating are signs and symptoms of exertional heat illness. Any of these problems should be immediately reported to the Athletic Trainer.
10. The athletic training staff and coaching staff is responsible for monitoring environmental conditions for possible heat/humidity extremes. The on-site Athletic Trainer will make final decisions on the postponing or cancellation of a practice/competition.

Specific exertional heat illnesses and their signs and symptoms can be found below.

1) Heat Cramps: Heat cramps are caused by people who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture. The low salt level in the muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

- A) Signs & Symptoms:
- a. Abdominal cramps
 - b. Muscle spasms
 - c. Leg cramps

2) Heat Exhaustion: Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. Heat exhaustion is caused by fluid loss, which in turn, causes blood flow to decrease to vital organs, resulting in a form of shock. As a result of dehydration, victims often complain of flu like symptoms hours after exposure.

- A) Signs & Symptoms:
- a. Headache
 - b. Dizziness and/or weakness
 - c. Nausea
 - d. Cool, pale, moist skin
 - e. Excessive sweating
 - f. Skin may be warm to the touch

3) Heat Stroke: Heat stroke occurs when the body's heat regulating mechanisms fail. Body temperature rises so high that brain damage and death may result unless the body is cooled quickly.

A) Signs & Symptoms:

- a. Weak, rapid pulse
- b. Rapid, shallow breathing
- c. Red, hot, and dry skin
- d. Decreased level of consciousness
- e. Vomiting

Cold Exposure

If the weather conditions get cold enough to cause concern the certified athletic trainer and head coach will meet to discuss the event at hand deciding if the conditions are dangerous for the student-athletes.