

THE WHITE BOOK

CHAPTER 8

Emergencies and Severe Weather

Section 4

Severe Weather

Version (date): 5 JUNE 2019

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Position: OPS/TRAINING DEPT

- I. **Organization:** The Assistant Commandant of Operations and Training is responsible for the safe and effective training of all cadets across the Citadel campus, to include monitoring and assisting in the prevention of any injuries during hot or severe weather, and is the proponent for this section.
- II. **Functions:** The primary functions of the Commandant's Operations and Training department are to provide staff supervision of training programs and provide recommendations to the Commandant on modifications to training based on weather conditions. This section provides guidance for the following procedures associated with preventing environmental casualties:
 - A. **Responsibilities**
 - B. **Heat Categories and Actions**
 - C. **Heat Illness Risk Management**
 - D. **Cancellation**
 - E. **Lightening**
- III. **Procedures:**
 - A. **Responsibilities:** TAC Officers and Cadet Chain of Command will ensure the following:
 1. Subordinates have received instructions and are knowledgeable concerning the various heat injuries and proper first aid measures.
 2. Adequate amounts of water are always available, and being consumed liberally.
 3. Close observation and supervision of cadets is accomplished with respect to any symptoms of heat injury.
 4. During cadre, each new cadet receives three full and complete meals daily, along with sufficient rest. Cadets will be advised to avoid "ice cold" drinks while still sweating, consume salt foods in moderation, keep headgear on while in direct sun, and avoid over consumption of sweets.
 5. New cadets going on sick call are not in any way tampered with or required to do any physically strenuous activities.
 - B. **Heat Categories and Actions:** Beginning mid-July and continuing throughout the hot weather months, the Citadel Athletic Training staff will provide Wet Bulb Globe Temperature (WBGT) readings to the Assistant Commandant each morning with the initial reading at 0900 and each time the reading

changes. A current reading will be provided immediately prior to Spirit Runs as indicated on the weekly Training Schedule.

1. Whenever a reading is obtained which falls into heat categories 1 thru 4 (see Table B-1 below), the trainer will immediately inform the following agencies/activities in such order:
 - i. Office of the Commandant (953-6925 or 953-4849)
 - ii. The Cadet OD or JOD (219-4104 or 219-4135)
 - iii. Office of the Athletic Director (953-5030)
 - iv. HESS / Department of Health and Human Performance (953-6847)
2. The Asst. Commandant for Operations will, upon notification of the heat category, fly the appropriate flag on the flagpole in front of Grimsley Hall. Upon issuance of a heat category, alert the Assistant Commandant who will issue instructions regarding modifications to the training schedule and heat injury preventative measures to be implemented. Guidance on prevention measures is provided below:

Note: Table B-1 provides work/rest and fluid replacement guidelines for heat-acclimatized individuals in a training environment. The guidelines supports at least 4 hours of work. Three time-weighted intensities are provided representing easy (~250 watts (W)), moderate (~425 W), and hard (~600 W) military tasks; examples are provided. The users should determine the existing weather conditions at the site of training (WBGT index) and then read the recommended work-time. The work-rest cycle is the ratio of minutes of work to minutes of rest within each hour.

Table B-1: Work/Rest and Water Consumption

Work/Rest and Water Consumption Table

Applies to average sized, heat-acclimated Soldier wearing ACU, hot weather. (See TB MED 507 for further guidance.)

Easy Work		Moderate Work		Hard Work	
<ul style="list-style-type: none"> • Weapon Maintenance • Walking Hard Surface at 2.5 mph, < 30 lb Load • Marksmanship Training • Drill and Ceremony • Manual of Arms 		<ul style="list-style-type: none"> • Walking Loose Sand at 2.5 mph, No Load • Walking Hard Surface at 3.5 mph, < 40 lb Load • Calisthenics • Patrolling • Individual Movement Techniques, i.e., Low Crawl or High Crawl • Defensive Position Construction 		<ul style="list-style-type: none"> • Walking Hard Surface at 3.5 mph, ≥ 40 lb Load • Walking Loose Sand at 2.5 mph with Load • Field Assaults 	

Heat Category	WBGT Index, F°	Easy Work		Moderate Work		Hard Work	
		Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)
1	78° - 81.9°	NL	½	NL	¾	40/20 min	¾
2 (green)	82° - 84.9°	NL	¾	50/10 min	¾	30/30 min	1
3 (yellow)	85° - 87.9°	NL	¾	40/20 min	¾	30/30 min	1
4 (red)	88° - 89.9°	NL	¾	30/30 min	¾	20/40 min	1
5 (black)	> 90°	50/10 min	1	20/40 min	1	10/50 min	1

- The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hrs of work in the specified heat category. Fluid needs can vary based on individual differences (± ¼ qt/hr) and exposure to full sun or full shade (± ¼ qt/hr).
- NL = no limit to work time per hr.
- Rest = minimal physical activity (sitting or standing) accomplished in shade if possible.
- **CAUTION: Hourly fluid intake should not exceed 1½ qts.**
Daily fluid intake should not exceed 12 qts.
- If wearing body armor, add 5°F to WBGT index in humid climates.
- If doing Easy Work and wearing NBC (MOPP 4) clothing, add 10°F to WBGT index.
- If doing Moderate or Hard Work and wearing NBC (MOPP 4) clothing, add 20°F to WBGT index.



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C. Heat Illness Risk Management:

1. Identify the hazards
 - i. Know the WBGT.

- ii. Know the risk factors for exertional heat illness (EHI). Most commonly thought of risk factors are the climate/temperature and the level of physical activity/exertions; however, there are numerous individual risk factors to be aware of—especially consider when a single individual has more than one of the listed risk factors.
 - a. Environment
 - i. Higher temperature
 - ii. High humidity (WBGT)
 - b. Activities
 - i. High exertion
 - ii. Heavy loads/gear
 - iii. Repeated strenuous days
 - c. Lack of acclimatization: Acclimatization requires aerobic exercise in a warm environment. The body needs to adjust to environmental heat stressors prior to high exertion activities; simply being outside doing normal activities is not sufficient.
 - d. Individual risk factors for EHI:
 - i. Poor fitness (2 mile run > 16 minutes)
 - ii. Body mass index > 26
 - iii. Gender (females)
 - iv. Minor illness
 - v. Medications
 - vi. Alcohol in the past 24 hours
 - vii. Prior heat injury
 - viii. Skin rash, sunburn, or poison ivy
 - ix. Blood donation (<3 days)
 - x. Sleep deprived
- iii. Know your Cadets—identify individuals at increased risk
- iv. Monitor hydration status—assess morning and evening as well as during training.
- v. Factor previous days' conditions and activities—consider temperature, activity levels, and illnesses.
- vi. Heat illness hazards are cumulative.

Note: Hot weather is a key risk factor for heat injuries; However, heat illnesses can occur during green flag temperature conditions due to previous days' conditions and/or dehydration.

2. Develop controls and make risk decisions.

- i. Estimate heat risk level 1 day prior
- ii. Consider:
 - a. Previous 2 days of heat exposure & predicted temperature for that day
 - b. Training events (i.e. distance, pace, breaks) and work-rest cycle, hydration guidelines
 - c. Uniform/ equipment
 - d. Location/ time of day
- iii. Adjust activity distances, durations, pace, and loads (i.e. conduct high-intensity training in cooler morning hours).
- iv. Ensure proper resources at appropriate locations.
 - a. Functional WBGT equipment
 - b. Water/electrolyte sources
 - c. Medical: resources, locations, communication systems

D. Heat Illness Treatment: Heat illnesses result from the combined stresses of exertion and heat stress. Heat illnesses may be minor in terms of injury to the body (heat exhaustion) but are still reportable, and can progress to more severe forms.

<u>Diagnosed Illness</u>	<u>Immediate First Aid</u>
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Heat Cramps	Remove to cool or shady area; massage extremities; loosen clothing; have the casualty drink on canteen of cool water, observe condition of the eyes and skin closely; return to training only if cramping ceases, all body signs appear normal, but monitor closely.
Heat Exhaustion	Remove to cool, shady area with good air circulation; loosen or remove clothing and equipment; remove boots; lay casualty down with head level or lower than feet; have casualty slowly drink liberal amounts of cool water; pour water on and then fan casualty if it is a very hot day; evacuate to the Infirmary, then notify the Commandant.
Heat Stroke	Notify Infirmary immediately and evacuate as soon as possible; LOWER BODY TEMPERATURE AS QUICKLY AS POSSIBLE, by applying cool or ice water to the entire body, avoiding nose or mouth; fan patient constantly to promote cooling of body by evaporation of applied water; remove clothing and equipment. Do NOT attempt to make casualty drink fluids; move immediately to cool shady area, then to the infirmary; THIS IS A LIFE THREATENING SITUATION.

- E. Cancellation Policy:** Generally, Physical Training events will only be cancelled for weather that is so severe that the risk created by the elements would outweigh the training value obtained by the event. Physical Training events will not be cancelled simply due to light or moderate rain.
1. The Regimental Commander (or authorized representative) will consult with Commandant Operations/CPRPM the morning of the event.
 2. There is no specific time that a "call" will be made before an event is cancelled. The Corps Operations/CPRPM will monitor weather information and make the decision up until the time the event is to start. If the call is made to cancel, the Regimental Commander will inform the Corps and the Regimental Operations Officer will make sure that all Battalion Commanders receive the information.
 3. If the weather becomes bad during Regimental PT, the event will be terminated in the same manner. The Regimental Commander may make the call for emergency situations where consultation with Commandant Operations would be impossible or impracticable.
- F. Lightning:** During a lightning producing storm, it is the responsibility of the Athletic Trainer to monitor weather conditions. The flash to bang method will be used to determine if the lightning present is dangerous for participants and spectators.
1. Begin counting the seconds when a lightning flash is sighted.
 2. Counting is stopped when the associated bang (thunder) is heard
 3. Divide this number by five (lightning travels 1 mile/5 seconds) to determine the distance to the lightning flash.
 4. Consult with National Weather Service
 - i. Lightning strikes determined to be **closer than 6 miles** is dangerous and everyone should seek shelter in this situation. The Athletic Trainer has the authority to stop any competition or event on the basis of safety. A period of 30 minutes should be given between the last clap of thunder and return to activity.