

HOW TO REDUCE HEAT STRESS HAZARDS

Engineering Controls - lower temperature; increase air movement.

- Try various shielding, ventilation, insulation, and humidity reduction methods
- Use spot cooling fans, evaporative cooling, air conditioning, general ventilation, and local exhaust ventilation at points of high heat production. When temperatures exceed 95°F, increasing air movement becomes ineffective in cooling

HEAT IS A YEAR-ROUND JOB HAZARD IN SOME WORKPLACES ON CAMPUS

Work Practice Controls- Water, Shade, Rest

- Provide water (not caffeinated beverages), and have a hydration plan. Drink 8 ounces every 15-20 minutes; 32 ounces per hour. Don't wait until you're thirsty.
- Provide breaks in a cooler environment and removal of PPE during breaks.
- Establish work-rest cycles that increase in frequency and duration of rest breaks.
- Acclimate to the hot work environment, and take time to acclimate after long periods of time away from the hot environment (i.e., after vacations). You lose acclimation after 3- 4 days away from working in hot environments.
- Wear light, loose clothing that permits evaporation of sweat, preferably cotton.

BE AWARE OF THE SIGNS OF HEAT STRAIN FOR YOURSELF AND YOUR COWORKERS. REPORT ANY CONCERNS TO YOUR MANAGEMENT OR EHS.

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ENVIRONMENTAL HEALTH AND SAFETY



HEAT STRESS TRAINING GUIDE

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When a working in a hot environment, the body must get rid of excess heat to maintain a stable internal temperature. This is done by circulating blood to the skin and by sweating. Temperatures close to or warmer than normal body temperature prevent heat loss from blood circulation.

Sweating becomes the main way the body cools off. Elevated humidity can prevent sweat evaporation. Improper fluid and electrolyte intake also lowers sweat production.

If the body gains more heat than it can dissipate, the body's core temperature rises and symptoms of heat exhaustion or stroke can develop. Many factors affect heat gain and loss: work activities, clothing worn, environmental factors, and personal health. Temperature alone does not define heat stress.

Symptoms of Heat Exhaustion:

Heat rash, heavy sweating, headache, cramps, nausea/vomiting, intense thirst, rapid pulse, fatigue and weakness

Symptoms of Heat Stroke, a true medical emergency:

High body temp, rapid pulse, chills, difficulty breathing, disorientation, erratic behavior, fainting, Hot, red, dry or damp skin.

Action:

Move employee to cool environment, take steps to initiate cooling, provide fluids and allow to rest.

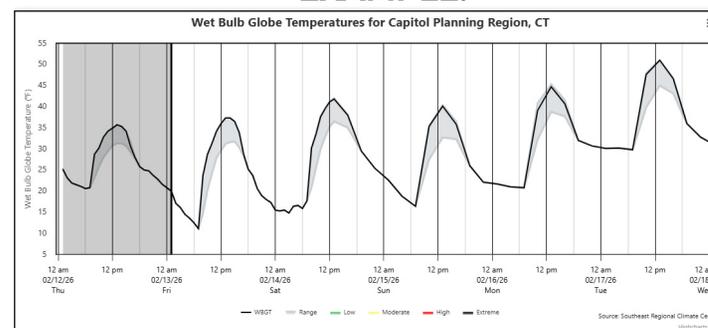
Contact 911 immediately and take steps to cool the victim!

HEAT STRESS MEASUREMENTS

Wet-Bulb Globe Temperature (WBGT) is a way to measure heat stress on the body, incorporating temperature, humidity, wind speed, radiant heat, and the intensity of the sun. Scan the QR Code to access this tool, select your location and the "military" reading. This will provide predictive WBGT measurements over a week, with recommendations:



EXAMPLE:



No flag categories are expected in the forecast period. Please look below to view WBGT guidelines.

Work/Rest and Water Consumption Table
Applies to average sized, heat-acclimated Soldier wearing ACU, hot weather. (See TB MED 507 for further guidance.)

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	Under 82	NL	1/2	NL	3/4	40/20 min	3/4
2 (green)	82-84.9	NL	1/2	50/10 min	3/4	30/30	1
3 (yellow)	85-87.9	NL	3/4	20/40 min	3/4	30/30	1
4 (red)	88-89.9	NL	3/4	30/30 min	3/4	20/40 min	1
5 (black)	Over 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 (± 1/2 qt/hr) and exposure to full sun or full shade (± 1/2 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 1/2 qts.
- Daily fluid intake should not exceed 12 qts.
- If wearing body armor, add 8°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.

Additional Resource:

This NIOSH document covers work/rest schedules: <https://heat.gov/tools-resources/heat-stress-work-rest-schedules/>

to help decrease the risk of heat-related illness, taking into consideration temperature and work intensity, and allows adjustments for sunlight/humidity by adding values to temperatures.