Heat Stress and Illness

Individual Risk Factors:
- Not acclimatized to heat (need 10-14 days to get Trainees adequately acclimated).
- Exposure to cumulative days (2-3 days) of any of the following:
  - Increased heat exposure
  - Increased exertional levels
  - Lack of quality sleep
- Overweight.
- Minor illness (cold symptoms, sore throat, low grade fever, nausea, vomiting).
- Taking medications (either prescribed or over-the-counter) and/or supplements or dietary aids. Example:
  - Allergy or cold remedies
  - Ephedra
- Use of alcohol in the last 24 hours.
- Prior history of heat illness (any heat stroke, or ≥2 episodes of heat exhaustion).
- Skin disorders such as rash and sunburn that prevent effective sweating.
- Age >40 years.

HIP Pocket Guide
(Heat Injury Prevention Guide)

Hazards:
- High heat category, especially on several sequential days (measure WBGT when ambient temperature is over 75°F)
- Exertional level of training, especially on several sequential days
- Acclimatization (and other individual risk factors – see reverse side)
- Time of exposure, to include nights and recovery time

Heat Injury Controls:
- Decision to accept risk is made at the appropriate level
  - Made in accordance with TRADOC Reg 385-2, para 1-5e.
- Identified controls are in place
  - Update WBGT hourly.
  - Adhere to work/rest cycle in high heat categories.
  - Run in formation at a double arm interval (the extra space is very effective to allow individual heat dissipation during runs).
  - For tasks requiring continuous effort, adhere to the Continuous Work/Water Consumption Guide (without rest) and other standardized guidelines for warm weather training conditions. Allow several hours of rest afterwards.
- Monitor and enforce hydration standard
  - Encourage frequent drinking. Do not exceed 1 ½ quarts per hour or 12 quarts per day. Make water more palatable, if possible, by cooling.
  - Do not allow Soldiers or Trainees to empty canteens to lighten load (consider imposing a penalty in time events).
  - Ensure Soldiers are well hydrated before training. Ask about urine - urine is clear if well hydrated.
  - Check Riley (water) Card or Ogden Card frequently.
- Monitor and enforce eating of meals
  - Ensure all meals are eaten during the meal break.
  - Ensure adequate time to eat and drink meals.
  - Table salt may be added to food when the heat category is high. Salt tablets are not recommended.
- Execute random checks
  - Spot checks by Cadre, Senior NCO's, and Drill Instructors.
  - Enforce battle buddy checks — need to be aware of each other’s eating, drinking and frequency of urination.
  - Plan placement of leaders to observe and react to heat casualties in dispersed training.
- Follow clothing recommendations
  - Heat category 1-2: No restrictions.
  - Heat category 3: Unblouse trouser legs, unbutton web belt.
  - Heat category 4-5:
    - Unblouse trouser legs, unbutton web belt.
    - Remove t-shirt from under BDU top or remove BDU top down to t-shirt (depends whether biting insects are present).
    - Remove helmets unless there are specific safety reasons to keep them on (ex: range).
    - MOPP 4: Add 10°F to WBGT index for easy work, and 20°F to WBGT index for moderate and hard work.
    - Body Armor: Add 5°F to WBGT index.

Have Soldiers take cold showers after moderate and heavy work with category 3 and above at the end of the day. This will minimize cumulative thermal load.
### Warning Signs and Symptoms of Heat Stress and Illness

With any of the below symptoms or signs, immediately call for medical evaluation by a 91W (Medic). If 91W is not immediately available, call for Medevac or ambulance.

#### Indications of Possible Heat Casualty

<table>
<thead>
<tr>
<th>MORE COMMON SIGNS/SYMPTOMS</th>
<th>IMMEDIATE ACTIONS</th>
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</thead>
<tbody>
<tr>
<td>• Dizziness</td>
<td>• Remove from training</td>
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<tr>
<td>• Headache</td>
<td>• Allow casualty to rest in shade</td>
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<tr>
<td>• Nausea</td>
<td>• Take sips of water</td>
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<tr>
<td>• Unsteady walk</td>
<td>• While doing the above, call for a Medic to evaluate the Soldier (Medic will monitor temperature and check for mental confusion)</td>
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<tr>
<td>• Weakness or fatigue</td>
<td><strong>If no Medic is available call for ambulance or Medevac. Ensure same Trainer keeps monitoring the casualty.</strong></td>
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<tr>
<td>• Muscle cramps</td>
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<tr>
<th>SERIOUS SIGNS/SYMPTOMS</th>
<th>Immediately call Medevac or ambulance for emergency transport while doing the following:</th>
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<tbody>
<tr>
<td>• Hot body, high temperature</td>
<td>• Lay person down in shade with feet elevated until Medevac or ambulance arrives</td>
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<tr>
<td>• Confusion, agitation (Mental Status Assessment)</td>
<td>• Undress as much as possible</td>
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<tr>
<td>• Vomiting</td>
<td>• Aggressively apply ice packs or ice sheets</td>
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<tr>
<td>• Involuntary bowel movement</td>
<td>• Pour cold water over person and fan</td>
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<tr>
<td>• Convulsions</td>
<td>• Give sips of water while awaiting ambulance (if conscious)</td>
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<tr>
<td>• Weak or rapid pulse</td>
<td>• Monitor airway and breathing until ambulance or Medevac arrive</td>
</tr>
<tr>
<td>• Unresponsiveness, coma</td>
<td>• Continue cooling during transport or until body reaches 100ºF</td>
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<tr>
<td>• Hyperventilating</td>
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</tbody>
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#### Mental Status Assessment

An important sign that the Soldier is in a **serious life-threatening** condition is the presence of mental confusion (with or without increased temperature). Anyone can do a mental status assessment asking some simple questions.

**Call for emergency Medevac or ambulance if any of the following exist:**

- **What is your name?** (Does not know their name.)
- **What month is it? What year is it?** (Does not know the month or year.)
- **Where are we/you?** (Is not aware of location or surroundings.)
- **What were you doing before you became ill?** (Does not know the events that led to the present situation.)

#### Indications of Possible Water Intoxication (Over Hydration)

**Signs and Symptoms:** Confusion, Weakness, and Vomiting

**What to do:**

**Ask these questions to the Soldier or battle buddy:**

- Has Soldier been eating? Check rucksack for # of MRE’s left (Suspect water intoxication if Soldier has not been eating).
- Has Soldier been drinking a lot? (suspect water intoxication if Soldier has been drinking constantly).
- How often has Soldier urinated? (frequent urination seen with water intoxication; infrequent urination with heat illness).
- What color is urine? (clear urine may indicate over hydration).

**If Soldier has been eating, drinking and urinating a lot, yet has these symptoms, immediately call Medevac or ambulance for emergency transport.**

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http://phc.amedd.army.mil
1-800-222-9698