

## Fluid Replacement and Work/Rest Guide

Heat Category	WBGT Index, °F	Easy Work		Moderate Work		Hard Work	
		Work/Rest	Water Intake (Qt/H)	Work/Rest	Water Intake (Qt/H)	Work/Rest	Water Intake (Qt/H)
1	78° - 81.9°	NL	½	NL	¾	40/20 min	¾
2 (GREEN)	82° - 84.9°	NL	½	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

**Easy Work** = Walking on hard surface 2.5 mph <30 lb. load, Weapon maintenance, Marksmanship training.

**Moderate Work** = Patrolling, Walking in sand 2.5 mph no load, Calisthenics

**Hard Work** = Walking in sand 2.5 mph with load, Field assaults.

- 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 ( $\pm \frac{1}{4}$  qt/hr) and exposure to full sun or full shade ( $\pm \frac{1}{4}$  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  $1\frac{1}{2}$  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.

### Individual Risk Factors:

The more factors, the higher the risk

- 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 heat rash and sunburn that prevent effective sweating.
- Age >40 years.

## HIP Pocket Guide

(Heat Injury Prevention Guide)

- Hazards**
- Individual Risk Factors**
- Fluid Replacement and Work/Rest Guide**
- Heat Injury Controls**
- Warning Signs and Symptoms of Heat Stress and Illness**

### Hazards:

- H**igh heat category, especially on several sequential days (measure WBGT when ambient temperature is over 75°F)
- E**xertional level of training, especially on several sequential days
- A**cclimatization (and other individual risk factors – see reverse side)
- T**ime 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  $1\frac{1}{2}$  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, unbuckle web belt.
- Heat category 4-5:
  - Unblouse trouser legs, unbuckle 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	
<p><b>MORE COMMON SIGNS/SYMPTOMS</b></p> <ul style="list-style-type: none"> <li>Dizziness</li> <li>Headache</li> <li>Nausea</li> <li>Unsteady walk</li> <li>Weakness or fatigue</li> <li>Muscle cramps</li> </ul>	<p><b>IMMEDIATE ACTIONS</b></p> <ul style="list-style-type: none"> <li>Remove from training</li> <li>Allow casualty to rest in shade</li> <li>Take sips of water</li> <li>While doing the above, call for a Medic to evaluate the Soldier (Medic will monitor temperature and check for mental confusion)</li> </ul> <p style="color: red; font-weight: bold;">If no Medic is available call for ambulance or Medevac. Ensure same Trainer keeps monitoring the casualty.</p>
<p><b>SERIOUS SIGNS/SYMPTOMS</b></p> <ul style="list-style-type: none"> <li>Hot body, high temperature</li> <li>Confusion, agitation (Mental Status Assessment)</li> <li>Vomiting</li> <li>Involuntary bowel movement</li> <li>Convulsions</li> <li>Weak or rapid pulse</li> <li>Unresponsiveness, coma</li> <li>Hyperventilating</li> </ul>	<p><b>Immediately call Medevac or ambulance for emergency transport while doing the following:</b></p> <ul style="list-style-type: none"> <li>Lay person down in shade with feet elevated until Medevac or ambulance arrives</li> <li>Undress as much as possible</li> <li>Aggressively apply ice packs or ice sheets</li> <li>Pour cold water over person and fan</li> <li>Give <u>sips</u> of water while awaiting ambulance (if conscious)</li> <li>Monitor airway and breathing until ambulance or Medevac arrive</li> <li>Continue cooling during transport or until body reaches 100°F</li> </ul>

### 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.