

RISK FACTORS FOR HEAT ILLNESS

Environment:

- Higher temperature
- High humidity (WBGT)

Activities:

- High exertion
- Heavy loads/gear
- Repeated strenuous days

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.

NOTE: Hot weather is a key risk factor for heat injuries, HOWEVER:

--> Heat illnesses can occur under green flag temperature conditions due to previous days' conditions and dehydration. 20% of all heat illnesses occur outside of the 'heat season' and occur year-round.

Individual Risk Factors to EHI:

- Poor fitness (2 mile run > 16 mins)
- Body mass index (BMI) > 26
- Age > 40
- Gender (female)
- Minor illness
- Medication: Antihistamines (e.g., Benadryl, Atarax, CTM), decongestants (e.g., Sudafed); certain high blood pressure medications (e.g., diuretics, beta blockers); psychiatric drugs (e.g., tricyclic antidepressants, antipsychotics). NOTE: There is currently NO scientific evidence that caffeine use contributes to dehydration in habitual caffeine users or that it affects body temperature regulation.

- Alcohol in the past 24 hours
- Prior heat injury
- Skin rash, sunburn, or poison ivy
- Blood donation (< 3 days)
- Sleep deprived

- Highly motivated - the desire to meet or exceed standards may lead some Soldiers to continue to push themselves as early signs/symptoms of EHI occur. These Soldiers should not be discouraged from pushing themselves but cadre should be aware of their tendency so that they can be watched more closely.

FIVE STEPS OF RISK MANAGEMENT TO PREVENT EHI

1. IDENTIFY THE HAZARDS:

Know the Wet Bulb Globe Temperature (WBGT)

Know the Total Body Heat Stress = heat stress is the product of heat generated by the body (due to metabolism and activity) and heat gained from the environment minus heat lost in the environment. Individual factors, clothing, equipment and activity level all need to be considered.

Know the Risk Factors for EHI. Most commonly thought of risk factors are the temperature and the level of physical activity/exertion, 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.

2. ASSESS HAZARDS:

Utilize the WBGT temperature index

- Add 5°F for rucksack or body armor
- Add 10°F if in MOPP 4

Know your Soldiers - Identify individuals at increased risk

Monitor hydration status - Assess morning and evening as well as during training

Factor in previous days' conditions & activities - Consider temperature, activity levels, and illnesses

Use a risk management matrix to document and manage decisions

REMEMBER "H.E.A.T.":

- H Heat category past 3 days
- E Exertion level past 3 days
- A Acclimation/other individual risk factors
- T Time (length of exposure and recovery time)

3. DEVELOP CONTROLS:

Plan in advance:

- Estimate heat risk level 1 day prior
- Consider:
 - Previous 2 days of heat exposure & Predicted Heat Category for that day
 - Training events (distance, pace, breaks, etc.) and Work-rest cycle, hydration guidelines, etc.
 - Uniform/equipment
 - Location, Time of day
- Adjust activity distances, durations, pace, and loads
 - Conduct high-intensity training in cooler morning hours
- Ensure proper resources at appropriate locations
 - Functional WBGTs
 - Water/electrolytes
 - Ice sheets (in cooler filled 1/3 water, 2/3 ice)
 - Medical: resources, locations, communication systems

Establish SOPs, train, and test Soldiers:

- Heat Illness prevention and Hydration cards and sunscreen to all
 - Place Heat Illness Prevention posters and urine guides in bathrooms, bulletin boards, DFAC, training areas, etc.

Identify how to monitor hydration & high risk personnel

Prepare communication capabilities, water, food/snacks, medical, and evacuation support:

- For most Soldiers, meals in garrison and MREs contain enough electrolytes so that consumption of commercial electrolyte beverages is not necessary. However, Soldiers may choose to consume these products if they so desire.

- Ensure water control points throughout designated training areas.

- Ensure canteens/hydration packs are properly cleaned daily (FM 21-10). Use of hydration packs is not recommended with commercial electrolyte beverages due to the risk of bacterial growth and contamination.

- Pre-plan changes if METT-TC/Heat Category changes or if heat casualties occur

4. IMPLEMENT CONTROLS:

Monitor Hydration and Personnel

- Identify High risk personnel

- Buddy system: Assign Low risk personnel to High risk personnel

- Track individual hydration status

- Use parachute 550 cord or Ogden cord tied to button hole, ear plug case, or shoe laces
- Daily intake (1 knot/black bead per canteen)
- Urine monitoring techniques (know limitations)

- Track High risk personnel: Use red beads or red armband/Velcro patch for "at-risk" Soldiers

- Place water at key points e.g., at land nav objectives

- Provide and monitor: Electrolyte drinks and meal intake

Change events and activities to minimize heat load

- Avoid back-to-back strenuous days, especially during Heat Category 4-5

- Modify time of day - complete activities earlier/later

- Adjust activity

Reduce pace and/or distance

Allow for more frequent rest breaks

Encourage Soldiers to rest in the shade whenever possible

- Reduce clothing and load:

Uniform

Backpacks, body armor, helmets, etc. (training)

- Dump excess heat

Allow/provide field shower

Cool overnight temperatures (fans, air conditioning, cool showers)

5. SUPERVISE AND EVALUATE:

Be familiar with signs/symptoms of EHI

- Look for mild signs/symptoms à stop from progressing
- Take immediate action when EHI is observed or suspected
- When in doubt, call 911 and begin cooling!!

Spot Check TROOPS/CADRE/JUNIOR LEADERS

- "What are heat illness signs/symptoms?"
- "Do you have your HIP (Heat Injury Prevention) Pocket Guide card?"
- "What is the current Heat Category?"
- "Who is at risk?" "Who is their buddy?"
- "What actions would you take if ... "
- Is water available and accessible?
- Are rapid cooling supplies on-hand?
- Do you have communication with medical support?

Spot check medical support

- Check equipment, personnel, evacuation vehicle, communication, ice sheets.

- If no organic medical support, check for coordination of alternatives (gate access for off-post EMS, travel time, procedures, etc.)

If a heat injury occurs, stop training and assess situation

- Confirm Battle Buddy System is in place.

- Monitor food intake (food/salty snack every 4 hrs or less).

- Check Ogden cords for water intake. Are they drinking BEFORE PT in morning?

- Monitor urine output (e.g. 'color test', and/or Soldiers should urinate a full bladder every 2-3 hours)

- Ask questions that require clear thinking (What day is it? Where are you?).

- Look for Soldiers who are visibly 'wilting' or struggling.

- Look for Soldiers bypassing controls (e.g. not drinking in order to have a full canteen for an inspection).