



UNITED STATES MARINE CORPS  
COMMAND ELEMENT  
II MARINE EXPEDITIONARY FORCE  
PSC BOX 20080  
CAMP LEJEUNE, NC 28542-0080

II MEFO 6200.1 Ch 1  
MARSOCO 6200.1  
MCIEAST-MCB CAMLEJO 6200.1  
FEB 6 2017

II MARINE EXPEDITIONARY FORCE, U.S. MARINE CORPS FORCES SPECIAL  
OPERATIONS COMMAND, AND MARINE CORPS INSTALLATIONS EAST-MARINE  
CORPS BASE CAMP LEJEUNE ORDER 6200.1 Ch 1

From: Commanding General, II Marine Expeditionary Force,  
U.S. Marine Corps Forces, Special Operations Command,  
Commanding General Marine Corps Installations East-Marine  
Corps Base Camp Lejeune

To: Distribution List

Subj: EXERTIONAL HEAT INJURY (EHI) PREVENTION AND MANAGEMENT

Encl: (1) EHI Risk Identification, Prevention, and Treatment  
(2) Heat Flag Activity Limitations  
(3) Work/Rest Ratios and Fluid Replacement Guide  
(4) Physical Conditioning and Acclimation Program Guides

1. Situation. To transmit changes to enclosure (1) of the basic order.

2. Mission. This change clarifies medical definitions, treatment, and EHI casualty care management.

3. Execution

a. Update enclosure (1), paragraph 4.d.(3)(a) to:

"(a) Rectal Temperature less than 103 degrees Fahrenheit with any 'Heat Stroke' sign or symptom: Transport to a MTF capable of a full evaluation. Hypernatremia or other deadly condition may exist. Avoid Intravenous (IV) hydration unless shock is present. Cool to 102 degrees Fahrenheit during transport using methods described in paragraph 5c below."

DISTRIBUTION STATEMENT A: Approved for public release;  
distribution is unlimited

b. Update enclosure (1), paragraph 4.d.(3)(b) to:

"(b) Rectal temperature greater than 103 degrees Fahrenheit: Urgently transport the supporting heat deck capable medical facility for intensive ice water cooling. Apply ice water soaked sheets and towels (ready in a cooler) around the body and head and change them out every 60 seconds during safety vehicle (or ambulance) transport. Communicate with the receiving medical facility (clinic or hospital) provider during transport. Stop cooling at a rectal temperature of 102 degrees Fahrenheit to prevent overshoot. Obtain IV access. IV hydration, one liter Normal Saline (NS) bolus then Keep Vein Open (KVO), is discouraged unless the casualty is in shock or has dry mucus membranes. Provide medical turnover to the accepting medical provider. Corpsmen will not return to the field until secured by the accepting medical provider. Other cooling methods are listed in paragraph 5c below. Obtain an initial rectal temperature as it drives treatment. Oral temperatures can vary 12 degrees Fahrenheit from rectal temperatures in exercised individuals."

c. Update enclosure (1), paragraph 5.c.(7) to:

"(7) Cold (40 degrees Fahrenheit) IV fluid. Cooling rates 0.1-0.4 degrees Fahrenheit/minute, depending on fluid volume and rate."

d. Update enclosure (1), paragraph 5.d. to:

"d. Continuous body core temperature readings should be taken via esophageal thermometer. If that is not available, rectal temperatures should be measured frequently, at least every 10 minutes. In addition, the victim's mental status should be checked frequently, as should blood pressure and urine output and color. Note: Pneumonia is a common diagnosis when the patient cannot be cooled effectively and shivers."

e. Change enclosure (1), paragraph 11 to:

"Reporting

(a) Unit Safety Representative or Medical Department Representative will report all EHI's in the Web Enabled Safety System (WESS) in accordance with reference (b).

(b) Medical Department Representatives will report all EHIs to Naval Hospital Camp Lejeune (NHCL) Building 65 Preventive Medicine Department. NHCL Preventive Medicine will report the EHIs in the Navy Disease Reporting System Internet Site in accordance with reference (a) and (c)."

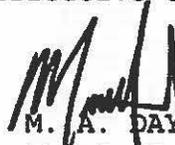
f. Change previous enclosure (1), paragraph 11 to paragraph 12.

4. Administration and Logistics. This change should be reviewed in its entirety. The major modification to the order includes direction to prevent overshoot while cooling EHI casualty. The remaining modifications are minor or administrative in nature.

5. Command and Signal

a. Command. This Order is applicable to II MEF, MARSOC, MCIEAST-MCB CAMLEJ subordinate commands, and tenant activities.

b. Signal. This Order is effective the date it is signed.

  
M. A. DAY  
Chief of Staff

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## EHI Risk Identification, Prevention, and Treatment

1. General. EHI occurs commonly in Marines and Sailors exerting themselves in hot, humid, low-wind environments, and is affected by multiple contributing factors relating heat loss to metabolic and environmental heat accumulation. The spectrum of EHI ranges from simple heat cramps to life threatening heat stroke. Permanent damage and death are directly related to time at temperature. No instruction or guide can cover all possible situations. Common sense and an understanding of the basic concepts presented here are essential to the effective identification, prevention, and treatment of EHI. The U.S. Army web site <http://phc.amedd.army.mil> contains downloadable pocket guides, training, and videos. The following guidelines provide for risk identification, prevention, and treatment of EHI:

### 2. Risk Factors

#### a. Environmental

(1) Exertion in high WBGT conditions, per enclosure (2), especially when the effects of heat and exertion were noticeable on the preceding day. The effects of heat and exertion are cumulative and dangerous.

(2) Wearing clothing or equipment that restricts cooling (add 10 degrees Fahrenheit to WBGT when wearing helmet, flak, and pack, or Mission Oriented Protective Posture (MOPP) gear).

(3) Competition, peer pressure, or orders that push individuals beyond their ability (e.g., unit runs and humps, physical fitness test (PFT)).

(4) Most heat strokes occur during the PFT, unit runs of three miles or less, unit marches of six miles or less, and field activities.

#### b. Personal

(1) Physical Conditioning. EHI risk is three times higher in individuals who are overweight, who possess a Body

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Mass Index (BMI) greater than 26, or run slower than eight minutes per mile on average on the PFT.

(2) Illness. Fever, vomiting, diarrhea, or respiratory illness within 24-hours precludes exerting in heat. Illness within three days requires medical clearance prior to engaging in physical exertion.

(3) Pushing beyond comfortable physical exertion or level of PT.

(4) Fatigue and Stress. Less than seven hours sleep in the last 24-hours, jet lagged (flight crossed five time zones in last five days) High heat load/work in the day's prior, and excessive worries or stress.

(5) Acclimatization less than two to three weeks, per enclosure (4).

(6) Inadequate hydration and nutrition (calories and salt).

(7) Medications and supplements include, but are not limited to, allergy and common cold medicines (e.g., diphenhydramine or pseudoephedrine), blood pressure medicines (e.g., diuretics, beta-blockers, angiotensin-converting-enzyme inhibitors, calcium channel blockers, etc.), depression medicines (e.g., tricyclic antidepressants), stimulants (e.g., ephedra or Ma Haung), and alcohol (no more than two drinks for males or one drink for females per day within two days prior to event). Voluntary dehydration, laxative, and diuretic use to reduce weight is especially dangerous.

(8) Prior EHI and/or family history that supports predisposition for EHI.

### 3. Prevention

a. Leaders must know their personnel.

b. Personnel must know they can communicate changing EHI risk and symptoms or stop exerting without fear of reprisal.

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- c. Individuals should condition and acclimatize their bodies per enclosure (4), and not push themselves or others beyond their ability in heat.
- d. Apply the principles of operational risk management (ORM) before, during, and after evolutions. Pay attention to the WBGTI, per enclosure (2). High exceptional heat events should be conducted during low risk times.
- e. Provide rest with active cooling, meals, and fluids, per enclosure (3).
- f. Minimize or eliminate group conditioning unit marches and runs. Group activities would be solely for strengthening group intrinsic values, such as trust and cohesion. The slowest individual should pace group physical activities.
- g. Identify individuals at risk and monitor them closely with peers and leaders.
- h. Individuals should get at least seven hours of sleep each night to promote recovery from fatigue (prior day's work or jet lag). Ensure sleeping, messing, and recreation quarters are screened and ventilated by natural or mechanical means. A night time WBGTI higher than 80 degrees Fahrenheit warrants air conditioning or fan cooling, if feasible.
- i. Maintain ideal body weight by regular activity and proper nutrition.
- j. Diuretics, laxatives, or other means to dehydrate (e.g., wearing clothes that promotes excessive sweating or fluid restriction) should not be used to reduce weight. Official weigh-ins should not occur within 48-hours of a PFT or event in heat.
- k. Avoid alcohol use.
- l. If a Marine or Sailor suffers an EHI, leaders will check the entire unit, and apply ORM to consider event cancellation or modification.
- m. Provide EHI education and training for everyone at least annually and when determined necessary by leaders.

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4. Signs/Symptoms and Initial (Field) Treatment

a. Heat cramps are isolated painful muscle spasms of the legs, arms, and torso that can be effectively treated with oral sodium (salty snacks) and fluid replacement. Heat cramps are not EHIs. Transport to a MTF if not resolved within 60 minutes.

b. Heat (Parade) Syncope is fainting or collapse caused by blood pooling in the legs vice pumping to the brain. It occurs commonly immediately after, not during, running if the runner does not cool down by walking or jogging. It also occurs while standing in formations if the leg muscles are not periodically flexed to pump the pooling blood out of the legs. The Marine or Sailor casualty should improve rapidly with shade, water, and lying flat with the legs elevated. Heat (Parade) Syncope experiences are not EHIs. If the Marine or Sailor casualty is not improving within three minutes or resolved within 15 minutes, treat as a heat stroke, per paragraph 4d below.

c. Heat Exhaustion occurs when a Marine or Sailor, while participating in physical exertion evolutions, does not feel well and may not be able to keep up or continue. Fatigue, malaise, headache, nausea, vomiting, cramps, rapid breathing, rapid heart rate, or dizziness may occur. Treat heat exhaustion by elevating the legs above the heart, properly hydrating, minimizing clothing, and resting in a cool place. If the individual looks good, has normal vital signs (including core temperature less than 103 degrees Fahrenheit) and mental status, they may be observed. If a heat exhaustion casualty gets worse, is not improving within 30 minutes, or is not resolved within one hour, transport the casualty to a medical emergency department, not a medical clinic or aid station, for evaluation.

d. Heat stroke is a medical emergency that occurs when a Marine or Sailor, while participating in physical exertion evolutions, collapses or displays an unusual change in their mental status (e.g., giddy, confused, anxious, agitated, combative, seizure, unconscious) of any duration, with or without any heat exhaustion signs or symptoms. Heat stroke casualties sweat in humid environments, but may not sweat in desert environments.

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(1) Verify and manage Circulations, Airway, and Breathing (CAB), commonly known as Basic Life Support.

(2) Stop heat casualty from exerting, provide shade, and remove excessive clothing, making every attempt to maintain privacy. Pour water over the casualty while summoning the Hospital Corpsman and safety vehicle.

(3) Rectal Temperature

(a) Rectal Temperature less than 103 degrees Fahrenheit with any "Heat Stroke" sign or symptom: Transport to a MTF capable of a full evaluation. Hypernatremia or other deadly condition may exist. Avoid Intravenous (IV) hydration unless shock is present. Cool to 102 degrees Fahrenheit during transport using methods described in section paragraph 5c below.

(b) Rectal Temperature greater than 103 degrees Fahrenheit: Urgently transport to the supporting heat deck capable medical facility for intensive ice water cooling. Apply ice water soaked sheets and towels (ready in a cooler) around the body and head and change them out every 60 seconds during safety vehicle (or ambulance) transport. Communicate with the receiving medical facility (clinic or hospital) provider during transport. Stop cooling at a rectal temperature of 102 degrees Fahrenheit to prevent overshoot. Obtain IV access. IV hydration (one liter Normal Saline (NS) bolus then keep Vein Open (KVO) is discouraged unless the casualty is in shock or has dry mucus membranes. Provide medical turnover to the accepting medical provider. Corpsmen will not return to the field until secured by the accepting medical provider. Other cooling methods are listed in paragraph 5c below. Obtain an initial rectal temperature as it drives treatment. Oral temperatures can vary 12 degrees Fahrenheit from rectal temperatures in exercised individuals.

5. Emergency Heat Deck Treatment (Branch Clinics and Emergency Department). The medical officer may alter this protocol as clinically indicated.

a. Verify and manage CAB.

b. Obtain the initial rectal temperature and vital signs. Establish large bore IV access.

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c. Patients with a rectal temperature greater than 102 degrees Fahrenheit shall be aggressively cooled to 102 degrees Fahrenheit using one or all of the following methods (EHIs are often mass casualties):

(1) Heat Deck Method. Pack ice and pour water over and around the casualty on a mesh stretcher placed over a water filled pool. This method is used at Marine Corps Base, Quantico and Marine Corps Recruit Depots. Cooling rates as high as 0.4 degrees Fahrenheit per minute are observed (15 minutes to cool from 108 degrees Fahrenheit to 102 degrees Fahrenheit). No deaths occurred at Marine Corps training locations since this method has been employed. A similar result can be achieved with ice and water with the casualty on the ground. Use a sheet under the casualty and hold it up at the sides/corners (similar to the shape of a taco) to keep the ice around the casualty.

(2) Immersion in ice water pool (circulating water cools more rapidly). Best published cooling rate of 0.35 degrees Fahrenheit per minute.

(3) Field and Transport Method of Choice. Serial wrapping every 60 seconds with ice water soaked sheets around the body and towels around the head (similar to the shape of a burrito).

(4) Place ice or "cool packs" in the groin and axilla while pouring water over the EHI casualty. Without water, this method is equal to ambient cooling.

(5) Fan the patient and set the air conditioning to the coldest setting. Drive vehicles with windows/top down; helicopter rotor wash.

(6) Hose with water.

(7) Cold (40 degrees Fahrenheit) IV fluid.

(8) Spray with tepid water and fan. This evaporative method used in air-conditioned emergency rooms for gentle cooling of classic heat stroke is less effective in humid environments. The cooling rate of 0.1 degrees Fahrenheit/minute (one hour to cool from 108 degrees Fahrenheit to 102 degrees Fahrenheit) results in 10 to 20 percent heat stroke death.

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d. Continuous body core temperature readings should be taken via esophageal thermometer. If that's not available, rectal temperatures should be measured frequently, at least every 10 minutes. In addition, the victim's mental status should be checked frequently, as should blood pressure and urine output and color. Note: Pneumonia is a common diagnosis when the patient cannot be cooled effectively and shivers.

e. Stop cooling when the rectal temperature drops below 102 degrees Fahrenheit.

f. IV fluids will be NS at a rate to be determined by the medical provider. Obtain IV access for all unstable casualties. IV hydration is often not required unless the casualty is in shock or has signs of dehydration such as dry mucus membranes and abnormal vital signs. Lung sounds should be evaluated and documented before a second liter is provided. Pulmonary edema is a complication of EHI. Hyponatremia may coexist. Dehydration is usually not significant. IV hydration is indicated to treat Rhabdomyolysis.

g. Perform an initial mental status exam and continually monitor for changes. If the patient is unconscious, consider early transport via ambulance to the closest appropriate hospital. If transport is delayed or deferred, perform cooling with cardiac monitoring (treatment room). Note: Seizure, coma, and cardiac dysrhythmias often resolve with rapid cooling. Ensure cooling is continued, without delay, with ice and water while waiting for and during transport. Attend to CAB.

h. Obtain glucometer glucose reading. If the glucose reading is less than 70, provide the patient with additional glucose at the medical officer's discretion. Glucose may be given orally (if conscious) or IV.

i. Patients with a respiratory rate greater than 30 or any mental status changes regardless of respiratory rate should be placed on oxygen via facemask at eight to 10 liters per minute.

j. Document treatment on the Heat Casualty Treatment Record SF 600, appendix C, or a generic SF 600.

6. Transport, Admission, and Disposition Guidelines (after cooling to 102 degrees Fahrenheit)

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a. Transport all EHI casualties to a medical facility (hospital) capable of performing studies listed in paragraph 7 below when they are not available at the heat deck facility (clinic). The medical provider will contact the receiving medical provider. Copies of all medical documentation, to include the Heat Casualty Treatment Record and/or the medical provider's notes and nursing notes, as applicable, shall accompany transport.

b. All EHI casualties will be monitored until all studies, including laboratory data, are reviewed by a medical provider and the patient's symptoms are resolved. Table 1, EHI Casualty Management Based on Presenting Symptoms and Clinical Chemistries guides, but does not dictate, transport to a hospital and admission decisions. EHI casualties are placed sick-in-quarters with follow-up within 24 hours.

7. Laboratory and Studies. Electrolyte results are necessary to guide further hydration and management of EHI complications. Blood for labs may be drawn during IV placement. Normally this is deferred to the medical facility capable of completing the labs.

a. 20cc of blood shall be withdrawn for laboratory analysis.

b. Heat panel labs include: Complete Blood Count (CBC), Liver function Test (LFT), Creatine Kinase (CK), and Urinalysis (UA).

c. Labs will be ordered as "STAT" and expeditiously transported to the laboratory.

d. Consider the need for an Arterial Blood Gas, platelet count (PT), electrolytes (PTT), Fibrinogen Split Products, or Chest X-Ray.

8. Post Stabilization Care

a. Vital signs and mental status assessments are performed a minimum of every 15 minutes for one hour and then every hour until discharge from the emergency department, unless otherwise directed by the attending physician.

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b. If the patient's mental status is appropriate and they are not nauseated, they may eat and drink ad lib. Patients must demonstrate the ability to tolerate oral intake prior to release from the emergency department.

9. Follow-up Care

a. Document follow-up visits in the medical record.

b. Follow labs until the CK is less than 1,000 and all other labs are normal.

c. Return to full duty is at the discretion of the medical provider once the patient is symptom free with a normal exam, has normal labs with CK less than 1,000, and they are motivated to return to full duty.

d. Patients discharged from hospital admission will be evaluated by a medical officer within 24 hours and their lab values will be reviewed and followed at the discretion of the medical officer.

10. Documentation

a. The Armed Forces Health Longitudinal Technology Application (AHLTA) should be used to document the encounter.

b. If AHLTA is unavailable, the Heat Casualty Treatment Record SF 600, appendix C, or a generic SF 600 will be then used for documentation of all confirmed or suspected EHIs. The SF 600 will then be scanned into AHLTA.

11. Reporting

a. Unit Safety Representative or Medical Department Representative will report all EHIs in the Web Enabled Safety System (WESS) in accordance with reference (b).

b. Medical Department Representatives will report all EHIs to Naval Hospital Camp Lejeune (NHCL) Building 65 Preventive Medicine Department. NHCL Preventive Medicine will report the EHIs in the Navy Disease Reporting System Internet Site in accordance with reference (a) and (c).

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12. Clinical Procedures when a Medical Provider, Clinic Heat Deck, or Heat Deck Team is Not Available

a. Refer to paragraph 4, "Signs/Symptoms and Initial (Field) Treatment," above in this enclosure.

b. Contact the Duty Medical Provider for direction regarding treatment and transport. If a medical provider is not available, call 9-1-1 to transport the EHI casualty to the emergency department. Go with the ambulance to assist ice water cooling during transport.

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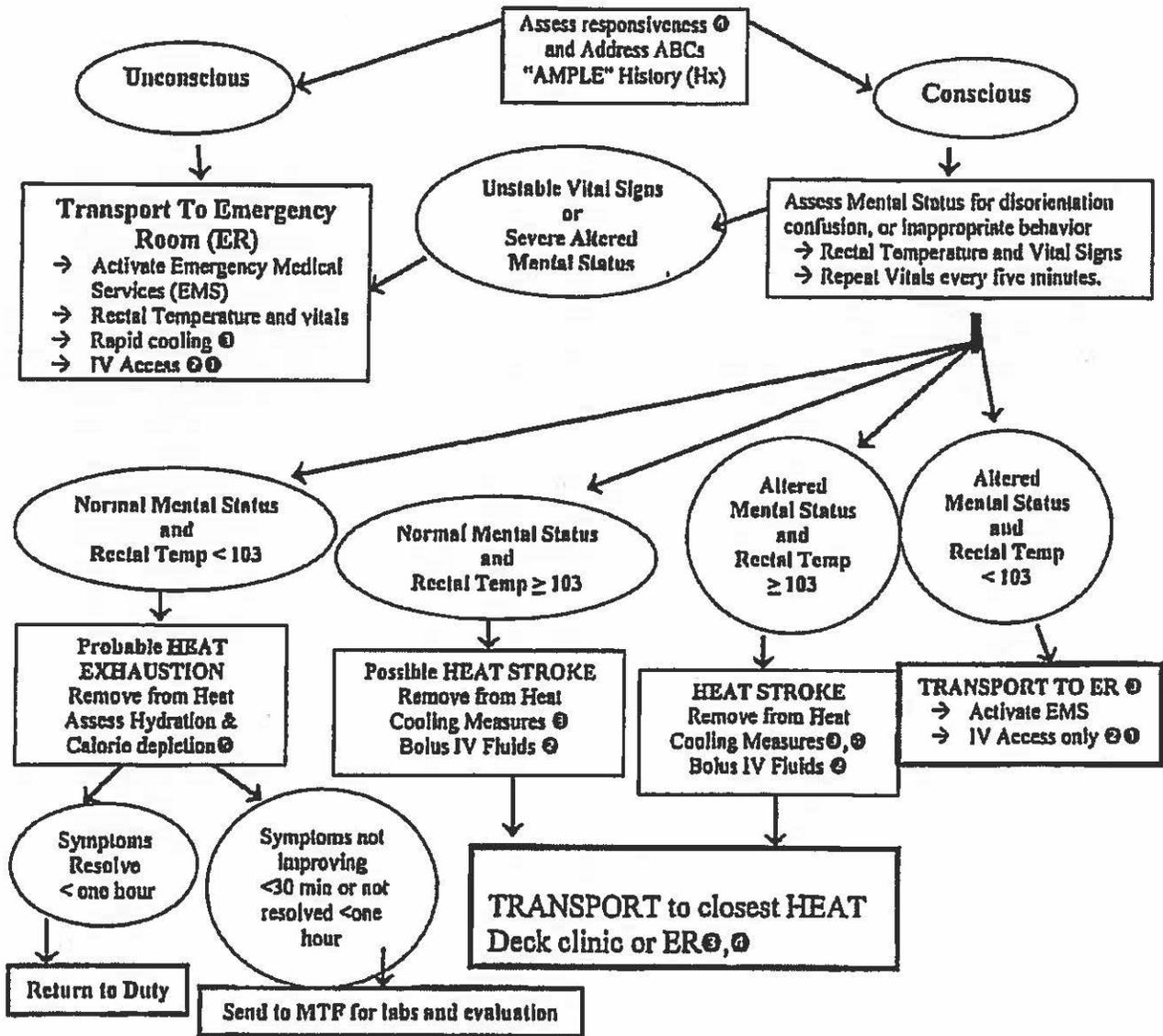
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Table 1. EHI Casualty Management Based on Presenting Symptoms and Clinical Chemistries

| CATEGORY | CARDIOVASCULAR STATUS              | Central Nervous Systems Status                           | Creatinine | CK              | Management   |
|----------|------------------------------------|--|------------|-----------------|--|
| 1        | Orthostatic - Tilt Test            | Normal   | ≤1.4       | <1,000          | Follow-up not necessary  |
| 2        | Syncope other than Parade syncope  | Lethargy, confusion and/or slow mentation                | 1.5 to 1.9 | 1,000 to 2,999  | Clinical/Lab follow-up in 24 hours (at Branch Clinic)                          |
| 3        | Orthostatic Hypotension +Tilt Test | Combativeness, delirium and/or persistent ataxia/vertigo | 2.0 to 2.9 | 3,000 to 10,000 | To emergency department (ED) from clinical and lab re-evaluation in four hours |
| 4        | Shock                              | Seizure, obtundation, and/or coma                        | >3.0       | >10,000         | To ED for stabilization and hospitalization                                    |

Enclosure (1)

**Exertional Collapse/Incapacitation Field Algorithm**

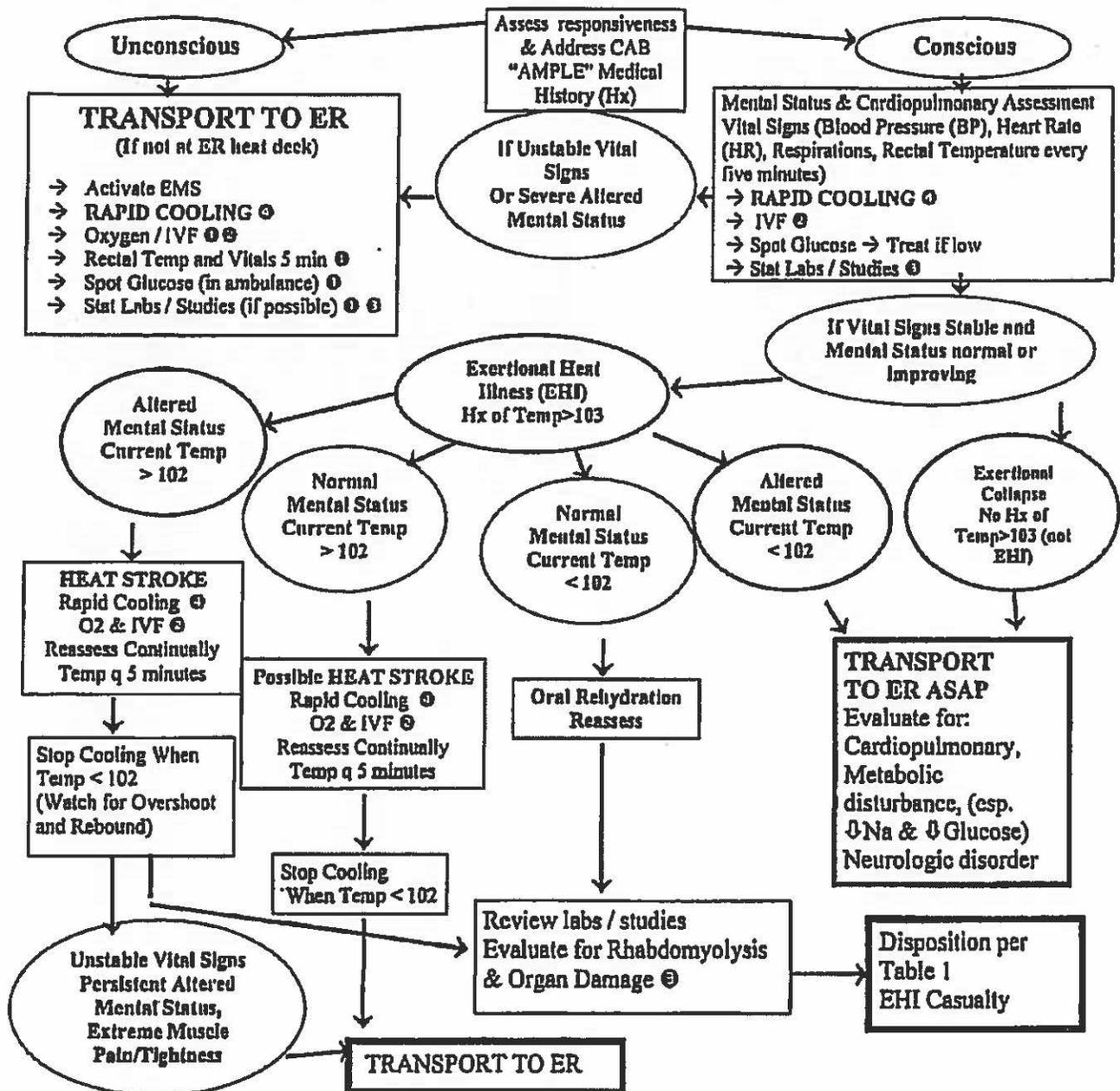


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- ① Do not delay cooling or transport for these actions.
- ② Cooled NS IV Fluid per provider guidance. If mucous membranes dry or "shock" present then bolus one liter, then KVO. If mucous membranes are wet, other signs of overhydrating or congestive heart failure (CHF) or temperature is less than 103 degrees Fahrenheit then NS at KVO; Reassess ongoing intravenous fluids (IVF) need from clinical response, lung exam, urine output, and labs.
- ③ Aggressive cooling while preparing transfer and while in route if rectal temperature is greater than 102 degrees Fahrenheit. Do not delay cooling. Ice water towels or sheets wrapped around body. Ice packs with pouring water over casualty. Cold IV fluids. Fanning. Vehicle air conditioning max or windows open. Helicopter Rotor Wash. Stop cooling when rectal temperature drops below 102.
- ④ Use C-Spine immobilization and back board for trauma.
- ⑤ Elevate legs, minimize clothing, rest in shade, oral rehydration and food or energy drink as indicated, reassess frequently.

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**Exertional Collapse/Incapacitation Heat Deck Algorithm**



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- ① DO NOT DELAY COOLING OR TRANSPORT FOR THESE ACTIONS
- ② Cooled NS IV Fluid per provider guidance. If mucous membranes dry or "shock" present then bolus 1 L then KVO. If mucous membranes wet, other signs of overhydrating or CHF or T<103 then NS at KVO; Reassess ongoing IVF need from clinical response, lung exam, urine output, and labs.
- ③ IMMEDIATE Sodium, glucosamine, potassium if available; STAT Heat Panel: creatine phosphokinase, LFTs, Uric Acid, UA + Micro, CBC, with automated differential count; Consider phosphate, magnesium, platinum, PTT, fragment simulating projectile, arterial blood gas, chest x-ray, and electrocardiogram and myoglobin if severe. CENTER FOR HEALTH CARE STRATEGIES ORDER SET: "Heat Panel". Studies should be done at a MTF capable of performing studies.
- ④ Rapid Cooling Measures: Ice water/pool, ice sheets, cold IVF, ice packs while pouring water, hose watering, fan. Stop cooling when temperature drops below 102. NOTE: Seizure, coma, and cardiac arrhythmias often resolve with rapid cooling.

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|  |               |
|--|---------------|
| TIME:  | SUBJECTIVE:   |
| AGE:   |               |
| EVENTS PRIOR: ( ) LOSS OF CONCIIOUSNESS ( ) COLLAPSE ( ) CONFUSION<br>( ) DIZZINESS ( ) VISUAL DISTURBANCE ( ) NAUSEA/VOMITTING ( ) HEADACHE<br>( ) CRAMPS |               |
| HT: _____ WT: _____  |               |
| FLUID INTAKE IN LAST 12 HOURS _____ LITERS   |               |
| LAST MEAL TIME/AMOUNT: _____   |               |
| ALLERGIES: _____ RECENT ILLNESS: _____   |               |
| HOURS OF SLEEP: _____ OTHER: _____   |               |
| MEDS:  | OBJECTIVE:    |
| APPEARANCE: ( ) WELL APPEARING ( ) ILL APPEARING<br>( ) OTHER: _____   |               |
| MENTAL STATUS: _____   |               |
| NEURO: _____   |               |
| SKIN CONDITION: ( ) FLUSHED ( ) HOT ( ) DRY ( ) PALE ( ) COOL<br>( ) NORMAL  |               |
| SUPPLEMENTS:   |               |
| SWEATING: ( ) SLIGHT ( ) MODERATE ( ) DIAPHORETIC ( ) NONE   |               |
| HEENT: ( ) PERRL ( ) MMM ( )   |               |
| OTHER: _____   |               |
| PMH: (I.E., HEAT ILLNESS)  |               |
| CARDIOVASCULAR: ( ) RRR ( ) PULSE STRONG ( ) PULSE WEAK/THREADY<br>( ) OTHER: _____  |               |
| PULMONARY: ( ) CTA-B<br>( ) OTHER: _____   |               |
| INITIAL VITALS: ABDOMEN: ( ) SOFT ( ) NON-TENDER ( ) NON-DISTENDED<br>( ) BOWEL SOUNDS PRESENT   |               |
| RECTAL TEMP: _____ EVIDENCE OF TRAUMA: _____   |               |
| P: _____ OTHER EXAMS: _____  |               |
| RR:  |               |
|  | Generic SF600 |
| TREATMENT:   |               |

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METHOD OF COOLING: \_\_\_\_\_ TIME STARTED: \_\_\_\_\_ STOPPED: \_\_\_\_\_  
 DEFERRED

BP: \_\_\_\_\_

HYDRATION:  ORAL  IV  DEFERRED

| # | SOLUTION | RATE  | SITE | STARTED | STOPPED | AMT | INITIAL |
|---|----------|---|------|---------|---------|-----|---------|
|   |          | <input type="checkbox"/> BOLUS<br><input type="checkbox"/><br>CC/HR |      |         |         |     |         |
|   |          | <input type="checkbox"/> BOLUS<br><input type="checkbox"/><br>CC/HR |      |         |         |     |         |

WGBT: \_\_\_\_\_

MEDS GIVEN: \_\_\_\_\_  O2 VIA \_\_\_\_\_  
 CARDIAC MONITOR

VITALS ASSESSMENT:

| TIME | T ° | P | RR | BP | SPO<br>2 | MENTAL  | COMMENTS |
|------|-----|---|----|----|----------|---|----------|
|      |     |   |    | /  |          | <input type="checkbox"/> AOX3<br><input type="checkbox"/> OTHER |          |
|      |     |   |    | /  |          | <input type="checkbox"/> AOX3<br><input type="checkbox"/> OTHER |          |
|      |     |   |    | /  |          | <input type="checkbox"/> AOX3<br><input type="checkbox"/> OTHER |          |
|      |     |   |    | /  |          | <input type="checkbox"/> AOX3<br><input type="checkbox"/> OTHER |          |
|      |     |   |    | /  |          | <input type="checkbox"/> AOX3<br><input type="checkbox"/> OTHER |          |
|      |     |   |    | /  |          | <input type="checkbox"/> AOX3<br><input type="checkbox"/> OTHER |          |

LABS:  HEAT PANEL RESULTS ATTACHED  DEFERRED

ASSESSMENT/PLAN:  SUSPECTED HEAT STROKE  EXERTIONAL HEAT EXHAUSTION  
 DEHYDRATION  OTHER: \_\_\_\_\_

DISPOSITION:  TRANSPORT

TIME DEPARTED: \_\_\_\_\_ RECEIVING FACILITY AND MO: \_\_\_\_\_

Generic SF600--Continued

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( ) ADMITTED TO \_\_\_\_\_ ( ) SIQ X 24 HRS, F/U IN AM AT AD SICKCALL  
 \_\_\_\_\_ CLINIC

( ) EDUCATION/INSTRUCTIONS GIVEN. PT VERBALIZES UNDERSTANDING ( )Y ( )N  
 PATIENT INITIALS: \_\_\_\_\_

NO STAMP/SIGNATURE: \_\_\_\_\_

PATIENT'S IDENTIFICATION (Use  
 this space for Mechanical  
 Imprint)

RECORDS MAINTAINED

AT: ✓

PATIENT'S NAME (Last, First, Middle Initials)

SEX

RELATIONSHIP TO SPONSOR

STATUS

RANK/GRADE

SPONSOR'S NAME

ACTIVITY/DIVISION

Generic SF600--Continued

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Heat Deck SOP Guide

1. This Heat Deck SOP is in effect 1 May through 31 October when the expected temperature exceeds 80 degrees Fahrenheit.
2. Heat Deck teams will be set daily and serve the following roles: Senior medical provider (team leader) at patient's head (cools head and neck and checks CAB), one vitals taker, two cooling personnel, one IV/phlebotomist. Pre-packed IV and lab supply kits in bags ready for use aid IV/phlebotomy efficiency.
3. Establish a standard "alarm" system for assembly of the heat team. All team members shall use universal precautions.
4. A cooler of ice in bags (for heat deck cooling) and one cooler of ice water slurry with two sheets and two towels will be ready daily (cooling in transport if needed). Event coverage corpsman will have the same ice water slurry, sheets, and towels for cooling during transport from the field to definitive cooling.
5. Cooling pools will be filled with cool water. Any body fluid contamination will cause the water to be changed after treatment of the contaminating patient. When a pool is not available, good results can be achieved with ice and water with the casualty on the ground. A sheet under the casualty held up at the sides/corners, "taco" method, keeps the ice around the casualty.
6. A mesh stretcher will be available to hold patients over the cooling pools.
7. Buckets or basins will be ready to dip water from pools and pour water over the patient with loose ice (from broken open ice bags) packed around patient's head, neck, torso, and thighs.
8. Soft rectal probe thermometers will be used when available for continuous temperature monitoring during cooling. Manufacture's sanitation guidelines will be followed.
9. When treatment condition-1 is set, pools will be emptied and moved inside and the wooden pool platform will be turned upside-down on flat ground near the clinic building. The platforms and pools will be made ready when clinic operations return to normal.

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Heat Flag Activity Limitations

GREEN FLAG

WBGTI: 80 degrees Fahrenheit - 84.9 degrees Fahrenheit

Action: Heavy exercise for un-acclimatized personnel should be conducted with caution and under constant, responsible supervision.

YELLOW FLAG

WBGTI: 85 degrees Fahrenheit - 87.9 degrees Fahrenheit

Action: Strenuous exercise such as marching at a standard cadence should be suspended for un-acclimatized troops. Avoid outdoor classes in the sun.

RED FLAG

WBGTI: 88 degrees Fahrenheit - 89.9 degrees Fahrenheit

Action: All physical training should be halted for those troops who have not become thoroughly acclimatized. Those troops who are thoroughly acclimatized may carry on limited activity not to exceed six hours per day. Personnel will not be burdened with body armor, field marching packs or similar equipment during this condition.

BLACK FLAG

WBGTI: 90 degrees Fahrenheit and above

Action: All strenuous outdoor physical activity shall be halted for all units.

Note 1: Essential activities may be conducted outside this guidance with the following considerations: Essential activities are defined as those activities associated with scheduled exercises or other major training evolutions where the disruption would cause undue burden on personnel or resources, be excessively expensive, or significantly reduce a unit's combat readiness. Essential outdoor physical activity will be conducted at a level that is

Enclosure (2)

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commensurate with work/rest cycles, per enclosure (4), in conjunction with the unit's CO, coordinating with the unit's medical officer, and/or medical personnel, as well as the supporting medical facility to ensure preparation for expected EHIs. All efforts should be made to reschedule these activities during cooler periods of the day. Individual elective outdoor physical fitness training shall also observe the same strict guidance.

Note 2: Most EHIs occur during no flag or green flag conditions. The American College of Sports Medicine Black flag condition starts at WBGTI 82 degrees Fahrenheit, which is well within military green flag condition, WBGTI 80 degrees Fahrenheit to 84.9 degrees Fahrenheit. EHIs occur even in temperatures as low as 60 degrees Fahrenheit. WBGTI guides do not fully prevent EHI.

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Work/Rest Ratios and Fluid Replacement Guide

| Flag Condition | WBGT °F        | Easy Work**     |               | Moderate Work** |               | Strenuous Work** |               |
|----------------|----------------|-----------------|---------------|-----------------|---------------|------------------|---------------|
|                |                | Work/Rest (min) | Water per Hr. | Work/Rest (min) | Water per Hr. | Work/Rest (min)  | Water per Hr. |
| Green          | 80-84.9        | No Limit        | ½ Qt.         | 50/10           | ¾ Qt.         | 40/20            | 1 Qt.         |
| Yellow         | 85-87.9        | No Limit        | ¾ Qt.         | 40/20           | ¾ Qt.         | 30/30            | 1 Qt.         |
| Red            | 88-89.9        | No Limit        | ¾ Qt.         | 30/30           | ¾ Qt.         | 20/40            | 1 Qt.         |
| Black          | 90 and Greater | 50/10           | 1 Qt.         | 20/40           | 1 Qt.         | 10/50            | 1 Qt.         |

Note 1: Add 10 degrees Fahrenheit to the WBGTI for MOPP gear, personal protective equipment, or body armor. Minimize restrictive clothing/equipment and wear light colored clothing if possible.

Note 2: Work/rest times and fluid replacement volumes shall sustain performance and hydration for at least four hours of work in the specified heat category. Individual water needs will vary. Do not exceed greater than three gallons per day without medical evaluation.

Note 3: Drinking to thirst is adequate during activity with full rehydration accomplished during meals. It is important to eat meals for salt and calories. Pale urine and return to normal body weight indicate full hydration. Drinking too much water and/or rehydration fluids can be deadly.

Note 4: Do not overexert yourself. Beware of the accumulative effects of heat and exertion from previous days. Personnel who feel sick, dizzy, or fatigued must stop exerting. Adjust work/rest ratios based on continuous unit assessment and self/buddy aid evaluations.

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Note 5: Actively cool down during rest periods by soaking hands and arms in water (colder is better), showers, shade, fans, or any other means of cooling available. At a minimum, drop loads and relax dress.

| Easy Work   | Moderate Work   | Strenuous Work  |
|---|---|---|
| <ul style="list-style-type: none"> <li>-Weapon maintenance</li> <li>-Walking hard surface at 2.5 miles per hour (mph), &lt;30 pound load</li> <li>-Manual of Arms</li> <li>-Marksmanship training</li> <li>-Drill and ceremony</li> </ul> | <ul style="list-style-type: none"> <li>-Walking loose sand at 2.5 mph, no load</li> <li>-Walking hard surface at 3.5 mph, &lt;40 pound load</li> <li>-Calisthenics</li> <li>-Patrolling</li> <li>-Individual movement technique; e.g., low crawl, high crawl</li> <li>-Defensive position</li> <li>Construction</li> <li>-Field assaults</li> </ul> | <ul style="list-style-type: none"> <li>-Walking hard surface at 3.5 mph, ≥40 pound load.</li> <li>-Walking loose sand at 2.5 mph with load.</li> <li>-Running and participating in physical conditioning training.</li> </ul> |

\*\* Examples of Easy, Moderate, and Strenuous Work.

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Physical Conditioning and Acclimatization Program Guides

1. Physical conditioning is important for EHI risk reduction and accelerated acclimatization. Table 1 suggests a six-week in-garrison or pre-deployment physical reconditioning and acclimatization program. Use various exercise routines to condition and rest different muscle groups (e.g., walk, jog, bike, etc.). Aerobic fitness is improved during weeks one through four. Weeks five through six enhances the rise in core temperature to assist in overall acclimatization. When exercising and/or conditioning in heat, do so to the point of perspiring, but do not push beyond comfort in heat. Rest when needed. Ensure individual EHI training and conditioning precedes acclimatization.

Table 1. CONDITIONING AND ACCLIMATIZATION IN GARRISON OR PREDEPLOYMENT

| Week | Activity                    | Intensity (%HRmax)* | Frequency (times per week) | Duration (min) |
|------|-----------------------------|---------------------|----------------------------|----------------|
| 1    | Intermittent exercise       | 65% - 80%           | 3                          | 35 - 40        |
| 2    |                             |                     | 4                          | 45 - 55        |
| 3    |                             |                     | 4                          | 60 - 70        |
| 4    |                             |                     | 5                          | 80 - 90        |
| 5    | Continuous aerobic activity | 55% - 65%           | 5                          | 100            |
| 6    |                             |                     | 7                          |                |

Note: Maximum Heart Rate (HRmax) equals 220, minus your age, multiplied by the percent intensity. For example, to calculate the HRmax for a 25 year old Marine or Sailor, subtract 25 from 220, then multiply by 0.65.  $220 - 25 \times .65 = 127$  beats per minute.

2. Table 2 suggests an alternate 21-day acclimatization program that may also augment the program in Table 1 for deployments as an eight-day arrival in-theater acclimatization program. The first day provides critical rehydration, sleep and rest to recover from a flight.

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Table 2. ACCLIMATIZATION IN GARRISON/UPON ARRIVAL IN THEATER

| Day  | Dress  | WBGTI<br>(°F) | Duration   | Activity (moderate workload)                                       |
|------|--|---------------|------------|--|
| 1    | No activity. Rest, eat, drink and sleep (24 hr. after flight)                |               |            |  |
| 2    | T-shirt and shorts   | 79-86         | 1 x 50 min | Walk 3.5 mph   |
| 3    | T-shirt and shorts   | 79-86         | 2 x 50 min | Walk 3.5 mph; rest 15 min; resume walking.                         |
| 4    | T-shirt and shorts   | 79-86         | 100 min    | Walk 3.5 mph   |
| 5    | Utility uniform  | 79-86         | 2 x 50 min | Walk 3.5 mph; remove blouse; rest 15 min; resume walking           |
| 6    | Utility uniform  | 79-87         | 100 min    | Walk 3.5 mph   |
| 7    | Utility uniform and 22 lbs. load   | 79-86         | 2 x 50 min | Walk 3.5 mph; Remove blouse and load; rest 15 min; resume walking. |
| 8-21 | Utility uniform and 22 lbs. load. (add load to 39 lbs as tolerated days 14+) | 79-86         | 100 min    | Walk 3.5 mph   |

Note 1. Allow for continuously available fluids to quench thirst.

3. Acclimatization improves cooling mostly through increased sweating (evaporation) which is less effective in high humidity. Perspiration that rolls off the skin, but does not evaporate, provides little in regards to cooling the body. Acclimatization is important, but it does not fully prevent EHI.

4. Acclimatization occurs by progressive and prolonged elevation of the body's core temperature. Living in a hot environment without exercising in the environment provides little acclimatization. Working and sleeping in an air conditioned environment restricts acclimatization. Conditioned athletes acclimatize after four to seven progressive exercise sessions of one hour to four hours total duration each over a period of seven to 10 days. Studies indicate that military units acclimatize about 40 percent during the first week, 80 percent during the second week, and 100 percent during the third week, but that depends on the individual conditioning levels of each person.

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5. For periods exceeding two weeks of not working or exerting in heat (e.g., living and working in air conditioned spaces, temporary additional duty, leave, convalescence, etc.), individuals should regain their conditioning level by following the guidelines in Table 1. Reacclimatize in the area of heat with the eight-day program, per Table 2.

6. Individuals who have not exercised or worked in heat for two to four or more weeks should be reconditioned/acclimatized during a graduated three to six-week program adapted from Table 1 or Table 2. Reconditioning requires reverting to a lower level of exertion and gradually increasing total exertion by about 10 percent per week. A typical guideline for unconditioned/non-acclimated personnel is to start at 50 to 75 percent of the last conditioned exertion level and increase exertion about 10 percent per week for three to six weeks. Written logs documenting exercise duration and intensity improve compliance. Leaders may determine when documentation of conditioning and/or acclimatization program completion is indicated.

7. Units where all Marines and Sailors have a BMI less than 26 and an average run time less than eight minutes per mile on their last PFT may only need 14 days acclimatization. Units with one or more individuals with a BMI equal to or greater than 26, or have an average run time equal to or greater than eight minutes per mile should expect 21 days to fully acclimatize. Days one through eight of Table 2 should be sufficient if the conditioning program, Table 1, immediately precedes acclimatization. For individuals preparing to deploy, the six week conditioning/acclimatization program in garrison, followed by the eight-day upon-arrival in theater program, would be sufficient. This assumes less than one week travel time to the deployed theater.