DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY MEDICAL COMMAND
2050 WORTH ROAD
FORT SAM HOUSTON, TEXAS 78234-6000

REPLY TO ATTENTION OF

MCPO-NCR

14 April 2004

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Heat Injury Prevention Program, 2004-2005

1. In peacetime, one Soldier dies from a heat injury every year during training. During Operation Iraqi Freedom 1, six Soldiers died from heat related causes. Further, there were 30 heat strokes and scores of other heat related casualties. Daily water intake should **never** exceed 12 quarts because water intoxication may be fatal.

2. We continue to learn the same lessons about heat injuries, at the expense of our Soldiers. From 1993-2002, a total of 1,440 Army personnel were hospitalized for treatment of heat injuries. From 1997-2002, a total of 8,084 Soldiers were treated as outpatients for heat injuries.

3. Heat injuries are preventable and Commanders are charged to prevent them. Commanders must remain vigilant, not only in desert climates where the threat may be obvious, but also in temperate environments where the threat is more subtle, but present.

4. Preventive medicine personnel must ensure that they coordinate with Commanders to prevent heat injuries. TB MED 507 as well as other heat injury resources can be obtained through the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) website: http://chppm-www.apgea.army.mil/heat/. A training video, "Heat Injury Risk Management," can be viewed through the website or ordered through the provided link.

5. Do not repeat history; help Commanders prevent heat injuries and heat-related deaths. Force health protection and the safety of every Soldier is the mission of the US Army MEDCOM. Your dedication to this mission is essential.

6. My points of contact for this memorandum are Mr. Paul Repaci, Health Systems Specialist, Proponency Office for Preventive Medicine, commercial (703) 681-2949, DSN 761-2949 or e-mail: Paul.Repaci@otsg.amedd.army.mil and Mr. Terrence Lee, USACHPPM, commercial (410) 436-2464, DSN 584-2464, or e-mail Terrence.Lee@apg.amedd.army.mil.

FOR THE COMMANDER:

Kenneth L. Farmer, Jr.

Encl

KENNETH L FARMER, JR.
Major General
Chief of Staff

DISTRIBUTION:
Commanders, MEDCOM Major Subordinate Commands
Commander, 18th MEDCOM, ATTN: Surgeon
Director, National Guard Bureau, ATTN: Surgeon, 111 South George Mason, Arlington, VA 22204-1382
Chief, U.S. Army Reserve Command, ATTN: Surgeon, 1401 Deshler Street South West, Fort McPherson, GA 30330-2000
Commander, U.S. Army Training and Doctrine Command, ATTN: Surgeon, 7 Fenwick Road, Fort Monroe, VA 23651-5000
Commander, U.S. Army Forces Command, ATTN: Surgeon, 1777 Hardee Avenue, SW, Fort McPherson, GA 30330-6000
Commander, U.S. Army Materiel Command, ATTN: Surgeon, 9301 Chapek Road, Fort Belvoir, VA 22060-5527
Commander, U.S. Army Test and Evaluation Command, Park Center IV, 4501 Ford Avenue, Alexandria, VA 22301-1458
Commander, U.S. Army Special Operations Command, ATTN: Surgeon, Fort Bragg, NC 28307-5200

Heat Injury Prevention Program
2004-2005

1. References:

a. TB Med507/AFPAM 48-152(I) Heat Stress Control and Heat Casualty Management, Prevention, Training and Control of Heat Injury, 07 March 2003.

b. "Clinical Diagnosis, Management, and Surveillance of Exertional Heat Illness," John W. Gardner and John A. Kark, in Deployment Health (Textbook of Military Medicine Series), Washington, D.C.: the Borden Institute, pp. 231-279, 2001.

c. Field Manual 21-18, Foot Marches, 1 June 1990.

d. Army Regulation 190-40, Serious Incident Reporting, 30 November 1993.

e. Field Manual 8-42 (FM 4-02-42), Combat Health Support in Stability Operations and Support Operations, 27 October 1997.

f. Memorandum, Headquarters, US Army Medical Command, HCHO-CL-W, subject: Triservice Reportable Events List, 17 Jun 1998.

g. Field Manual 21-20 w/change 1, Physical Fitness Training, 1 October 1998.

h. Memorandum, Department of the Army, DASG-HSZ, subject: OTSG Policy on Medical Screening for Dietary Supplements, 1 May 2000.

i. Field Manual 21-10, Field Hygiene and Sanitation, 21 June 2000.

j. Field Manual 4-25,12 (21-10-1), Unit Field Sanitation Team, 25 January 2002.

k. Field Manual 4-02.17, Preventive Medicine Services, 28 August 2002.

l. Memorandum, Headquarters, US Army Medical Command, MCPO-NC, subject: Reporting Data on Use of Medication and Nutritional Supplements by Patients with Heat Injuries and illnesses, 12 September 2002.

2. Revised in 2003, TB MED 507, "Heat Stress Control and Heat Casualty Management" (TB MED 507/AFPAM 48-152(I)), is a manual that contains information useful to developing a comprehensive heat injury program. All aspects of heat injury prevention, from heat-induced physiological responses, to casualty care, to prevention guidelines, to hot weather deployment tips are covered in this document. All programs should have this document as the main guiding reference for heat stress control and casualty management.

3. Heat injuries comprise a spectrum, ranging from sunburn to heat stroke. TB MED 507 provides guidance in distinguishing among the various types of heat injuries, detailing cause, symptoms, treatment, and prevention. More technical details are available in the Textbook for Military Medicine. A summary chart of heat injuries is on the last page of Appendix 1 and a full color poster is available through the US Army Center for Health Promotion and Preventive Medicine (CHPPM) website.

4. A comprehensive heat injury prevention program should follow the principles of Risk Management by identifying hazards, assessing the hazards in terms of severity and probability, implementing appropriate controls to abate the hazards, and supervising and evaluating the effect of the controls. Units train using Risk Management principles; therefore, it is imperative that commanders, leaders, and medical assets are educated on the prevention of heat injuries using this terminology. Heat injury prevention is a Command responsibility. Appendix 1 is a Commander's, Senior NCO's, and Instructor's Guide to Risk Management of Heat Casualties that will assist in presenting heat injury prevention in this format. Individual risk factors for heat casualties include lack of acclimatization, cumulative exposure to heat, poor physical fitness, overweight, concurrent illness, taking medications/dietary supplements, (such as Ephedra), use of alcohol, prior history of heat injury, skin disorders, and being older than 40.

5. Cases of heat stroke and heat exhaustion are reported through the Reportable Medical Events System (RMES) to the Army Medical Surveillance Activity (AMSA). Preventive Medicine personnel at the Medical Treatment Facilities should receive local reports of possible heat injuries, should investigate and compile the required information about the heat injury, and should report the heat injuries electronically through RMES to AMSA.

6. The use of ephedra-containing substances in the past for weight loss and athletic performance has been linked to the deaths of some users in and outside of the military. In February 2004, the FDA prohibited the sale of dietary supplements containing ephedra. Ephedra presents an increased risk of heart attack and stroke. Ephedra-containing substances should NOT be used under any circumstances. Some dietary supplements may be marketed as "Ephedra-free". These products may contain other harmful substances and their use should be discouraged.

7. The CHPPM and the US Army Research Institute for Environmental Medicine has developed heat prevention products including informational posters and pocket guides. These are available free of charge through the CHPPM website to Army units while supplies are available.

Appendix
1. Commander's, Senior NCO's, and Instructor's Guide to Risk Management of Heat Casualties.

Appendix I
Commander's, Senior NCO's, and Instructor's Guide to Risk Management of Heat Casualties

Risk Management is the process of identifying and controlling hazards to protect the force.

Possible Outcomes of inadequate climatic heat management:

Casualty	Risk Severity
Heat Cramps	Marginal
Heat Exhaustion	Critical
Heat Stroke	Critical-Catastrophic
Water Intoxication (Over Hydration)	Critical-Catastrophic

The Five Steps of Risk Management are:

1 Identify 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 table below)

Time (length of heat exposure and recovery time)

Individual Risks for Heat Casualties (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
- Poor fitness (Unable to run 2 miles in < 16 minutes)
- Overweight
- Minor illness (cold symptoms, sore throat, low grade fever, nausea, vomiting)
- Taking medications (either prescribed or over the counter)/supplements/dietary aids Ex: Allergy or cold remedies. Ephedra supplement
- 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 which prevent effective sweating
- Age > 40 years

2 Assess Hazards

- When ambient temperature is over 75° F, constantly assess the **heat category** using Wet Bulb Globe Temperature (WBGT)
- Know your Soldiers! Identify early who will be at increased risk based on **individual risk factors**
- Check **hydration status** at the end of each training day. Give extra fluid at night and in the morning if hydration is inadequate
  - Review Riley (water) card or Ogden cords
  - Ask about urine color. Urine is clear if well hydrated
- Daily **assess the overall risk** for developing a heat casualty (may use a risk matrix)

The following matrix has been used successfully through experience by Commanders.

Example of a Heat Injury Risk Management Matrix

Scores assigned to different conditions based on risk for developing a heat injury.
This scoring system: 0= Low risk; 1=Medium risk, 2=High risk; 3=Extreme risk

RISK FACTORS	Level of Risk (For each Factor Circle the Appropriate Condition)			
	0	1	2	3
Risk Management Worksheet	All control measures implemented			Not all control measures implemented
Heat (WBGT at site)	None (Less than Category 1)	Category 1	Category 2 and 3	Category 4 and 5
No. Sequential Days Heat Cat 5	0	1	2-3	≥4
Heat Injuries in the unit in Past 2 Days	None	Heat Cramps	Heat Exhaustion	Heat Stroke*
Work in Past Two Days (see below)	Easy	Easy	Moderate	Hard
Projected Work for the Present Day	Easy	Easy	Moderate	Hard
Heat Acclimatization Days	>13	7-13	3-6	<3
Leader/Cadre Presence	Full time	Substantial	Minimal	None
Length of Duty Time of Cadre	18 Months	7-18 Months	1-6 Month	< 1 Month
Communication System	Radio and Phone	Phone Only	Radio Only	None
Rest in Previous 24 Hours	> 7 Hours	5-7 Hours	2-4 Hours	< 2 Hours

Cumulative score: 25-33 = extreme risk, 16-24 = high risk, 7-15 = medium risk, 0-6 = low risk.
* If Heat Stroke has occurred in unit in past 2 days, risk level= extreme risk

Easy Work	Moderate Work	Hard Work
• Weapon Maintenance • Walking Hard Surface at 2.5 mph, < 30 lb Load • Marksmanship Training • Drill and Ceremony	• Walking Loose Sand at 2.5 mph, no Load • Walking Hard Surface at 3.5 mph, < 40lb Load • Calisthenics • Patrolling • Individual Movement Techniques. i.e. low crawl, high crawl	• Walking Hard Surface at 3.5 mph, ≥ 40 lb Load • Walking Loose Sand at 2.5 mph with Load • Field Assaults

3 Develop Controls

Education

- Establish SOPs. Ensure all personnel are trained and follow SOPs for Heat Casualty Prevention
- Ensure all bulletin boards have Heat Casualty Prevention posters and all leaders have Heat Casualty Prevention aids

Planning

- Adjust the training schedule to minimize consecutive days of heavy physical training, especially if other heat stressors exist (e.g., heat exposure and lack of quality sleep)
- Plan communications, medical and evacuation support
- Plan and provide adequate hydration for *all* personnel (including Cadre and Drill Instructors)
- When planning training events, keep in mind:
  1. Time of day the training is conducted – morning is cooler
  2. Location of training
     - Sun vs. shade. Rest in shade.
     - Open vs. protection from wind - wind has cooling effect
     - Open up the formation to decrease heat strain
  3. Clothing
     - Heavy, restrictive vs. loose, lightweight
  4. Where in training cycle
     - Most heat casualties occur in the 2nd or 3rd week of recruit training
     - Acclimatization can take 7-14 days, depending on the physical condition of the trainee
- After moderate to hard work in heat category ≥3; take cold, nude showers at the end of the day

Identification

- Identify previous heat exhaustion or heat stroke Soldiers and mark visibly on uniform (tape or cord)
- Identify overweight Soldiers and Soldiers who are unfit
- Identify Soldiers on medications and mark visibly on uniform (tape or cord)
- Seriously consider taking Soldiers out of training who have had alcohol within the last 24hours Seriously consider having ill Soldiers seen on sick call.
- Note and document heat category hourly. Position WBGT at site of training

Develop a Hydration Monitoring System

- Examples of monitoring methods:
  - Riley (water) card. On the card, Battle buddy is to write the amount of water the Soldier has drunk.

Water Consumption Card

Name:

Time	Mon	Tue	Wed	Thur	Fri	Sat	Sun
0530-0600							
0600-0700							
0730-0800							
0900-1000							
1000-1100							
1100-1200							
1200-1300							
1300-1400							
1400-1500							
1500-1600							
1600-1700							
1700-1800							
1800-1900							
1900-2000							
2000-2100							
2100-2200							

  - Ogden Cord is 550 cord, parachute cord, or shoestring that is tied to a uniform buttonhole or ear protection case. Soldiers tie a knot in the cord each time they finish a canteen (1 quart) of water.

3 Develop Controls continued

Know Standardized Guidelines for Warm Weather Training Conditions

Fluid Replacement and Work/Rest Guide

Acclimatized (after approx two weeks training) Wearing BDU, Hot Weather

		Easy Work		Moderate Work		Hard Work	
Heat Category	WBGT Index, (F°)	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

- 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 (±¼ qt/h) and exposure to full sun or full shade (±¼ qt/h).
- NL= no limit to work time per hour.
- Rest means minimal physical activity (sitting or standing), accomplished in shade if possible.
- **CAUTION:** Hourly fluid intake should not exceed 1½ quarts.
- Daily fluid intake **should not exceed 12 quarts.**
- If wearing body armor add **5°F** to WBGT in humid climates.
- If wearing NBC clothing (mission-oriented protective posture (MOPP 4)), add **10°F** to WBGT index for easy work, and **20°F** to WBGT index for moderate and hard work.

Easy Work = Walking hard surface 2.5 mph <30lb load, Weapon maintenance, Marksmanship training
Moderate Work = Patrolling, Walking sand 2.5 mph no load, Calisthenics
Hard Work = Walking sand 2.5 mph w/load, Field assaults

Continuous Work Duration and Fluid Replacement Guide

Acclimatized (after approx two weeks training) Wearing BDU, Hot Weather

It is assumed the trainees performing these continuous effort tasks have not yet had heat stress or dehydration prior to this activity and will have several hours of rest afterwards.

		Easy Work		Moderate Work		Hard Work	
Heat Category	WBGT Index, (F°)	Work (min)	Water Intake (Qt/h)	Work (min)	Water Intake (Qt/h)	Work (min)	Water Intake (Qt/h)
1	78-81.9	NL	½	NL	¾	70	1
2 (Green)	82-84.9	NL	½	150	1	65	1 ¼
3 (Yellow)	85-87.9	NL	¾	100	1	55	1 ¼
4 (Red)	88-89.9	NL	¾	80	1 ¼	50	1 ¼
5 (Black)	> 90	180	1	70	1 ½	45	1 ½

- NL can sustain work for at least 4 hours in the specified heat category.
- Fluid needs can vary based on individual differences (± ¼ qt/hr) and exposure to full sun or full shade (± ¼ qt/hr).

4 Implement Controls

Decision to accept risk is made at the appropriate level

- Made in accordance with appropriate MACOM regulation

Identified controls are in place

- Update WBGT hourly when ambient temperature is ≥ 75°F
- Adhere to work/rest cycle in high-heat categories. Rest in shade
- For tasks requiring continuous effort, adhere to guideline and allow extended rest afterwards
- Training event incorporates good prior planning

Monitor and enforce hydration standard

- Encourage frequent drinking, but not to 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 timed events)
- Ensure Soldiers are well hydrated before training. Ask about urine; urine is clear if well hydrated
- Check Riley (water) card or Ogden Cord frequently

Monitor and enforce eating 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 injuries 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 (e.g.: range)
- MOPP 4: Add **10°F** to WBGT index for easy work, and **20°F** to WBGT index for moderate to hard work

5 Supervise & Evaluate

- Enforce SOPs.
- Delegate authority to ensure control measures have been implemented.
- Monitor adequacy/progress of implementation of control measures.
- Conduct spot checks of cadre. Do cadre have current WBGT? Are cadre implementing work/rest/drink cycles? Make on-the-spot corrections. Lead by example.
- Conduct spot checks of recruits. Ask recruits questions while observing their mental status and physical capabilities. Look out for common signs and symptoms which can rapidly progress to serious signs and symptoms. Ask recruits when did they last urinate and was their urine clear?
- If 1-2 recruits become heat casualties, stop all training and evaluate each Soldier for early signs and symptoms of becoming an impending heat casualty.
- When controls fail, heat injuries occur. The ability to recognize heat injury is paramount. Take immediate action if any heat injuries are observed or suspected. Stop-rest-cool then evaluate in accordance with warning signs and symptoms. If in doubt, evacuate.

Warning Signs and Symptoms of Heat Casualty and Water Intoxication

Indications of possible Heat Casualty	
More Common Signs/Symptoms • Dizziness • Headache • Nausea • Unsteady walk • Weakness or fatigue • Muscle cramps	**Immediate Actions** • Remove from training • Allow casualty to rest in shade • Loosen clothing • Take sips of water • While doing the above, call for a Medic to evaluate the Soldier (Medic will monitor temperature and check for mental confusion) **If no medic is available, call for ambulance or Medevac**
Serious Signs/Symptoms • Hot body, high temperature • Confusion, agitation (Mental Status Assessment) • Vomiting • Involuntary bowel movement • Convulsions • Weak or rapid pulse • Unresponsiveness, coma	**Immediately call Medevac or ambulance for emergency transport while doing the following:** • Lay person down in shade with feet elevated until Medevac or ambulance arrives • Undress as much as possible • Aggressively apply ice packs or ice sheets • Pour cold water over casualty and fan • Give *sips* of water while awaiting ambulance (if conscious) • Monitor airway and breathing until ambulance or Medevac arrive

5 SUPERVISE & EVALUATE CONTINUED

Indications of possible Water Intoxication (Over Hydration)	
Signs and Symptoms Confusion Weakness Vomiting	**What to do:** **Ask these questions to the Soldier or battle buddy:** 1. Has Soldier been eating? Check rucksack for # of MRE's left. 2. Has Soldier been drinking alot? (suspect water intoxication if Soldier has been drinking constantly). 3. How often has Soldier urinated? (frequent urination seen with water intoxication; infrequent urination with heat illness) 4. 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**

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.)

Hot Weather Casualties and Injuries Chart

- Train commanders and Soldiers on heat injury prevention and heat risk assessment
- Remember the acronym **H-E-A-T** when training in hot weather
  (**H**: heat category; **E**: exertion level; **A**: acclimatization; **T**: time of heat exposure and recovery time)
- Follow recommended fluid replacement guidelines and ensure nutritional requirements are met

Hot Weather Injuries and Casualties

Cause	Symptoms	First-Aid	Prevention
Sunburn			
• Exposure of skin to direct sun • Can occur on overcast days	• Red, hot skin • May blister • Moderate to severe pain • Can result in fever	• Move to shade; loosen clothing if necessary • Apply cold compress or immerse in cool water • Apply moisturizing lotion to affected areas • Hydrate with fluids • Administer analgesics for pain or fever • Do not break blisters	• Adequate sun protection • Use sunscreen liberally and apply often, especially when sweating excessively • Select SPF 15 or higher • Proper wear of clothing, cap
Heat Rash (Prickly Heat)			
• Restrictive clothing • Excessive sweating • Inadequate hygiene • Causes heat intolerance if 20% of skin affected	• Red, itchy skin • Bumpy skin due to blocked pores • Moderate to severe itching • Can result in infection	• Apply cold compress or immerse in cool water • Keep area affected dry • Control itching and infection with prescribed medications	• Proper wear of clothing • Shower (nude) after excessive sweating
Heat Cramps			
• Excessive loss of salt from body due to excessive sweating • Not acclimatized to hot weather	• Painful skeletal muscle cramps or spasms • Mostly affects legs and arms	• Replace salts • Sit quietly in the shade or cool area • Massage affected muscle • Drink oral rehydration package or sports drink • Drink 0.05 to 0.1% salt solution (add ¼ of MRE salt packet to 1 quart canteen) • Get medical evaluation if cramps persist	• Eat all meals to replace salt • Consume salt-supplemented beverages if adequate meals have not been consumed prior to prolonged periods of heavy sweating • Ensure adequate heat acclimatization
Heat Exhaustion			
• Body fatigue and strain on heart due to overwhelming heat stress • Dehydration (see below) • Inadequate acclimatization • Inadequate physical fitness for the work task • Most common exertional heat illness	• Dizziness • Fatigue • Weakness • Headache, nausea • Unsteady walk • Rapid pulse • Shortness of breath	• Initiate active cooling by best means available • Move to shade and loosen clothing • Lay flat and elevate feet • Spray/pour water on Soldier and fan for cooling effect or use ice sheets around neck, arm pits and groin, if available • Monitor with the same (one) instructor or supervisor • Assess Soldier's mental status every few minutes • Have Soldier slowly drink one full canteen (quart) of cool water every 30 minutes with a maximum of 2 canteens • If not improved in 30 to 60 minutes, evacuate for further medical care • NOTE: Those who recover within 60 minutes should return to light duty on a profile for the remainder of the day	• Allow for acclimatization • Monitor WBGT • Keep Soldiers in shade whenever possible • Follow water replacement guides • Observe work-rest cycles • Identify high risk individuals • Maintain buddy system • Eat all meals in garrison and field • Do not take dietary supplements • Modify uniform accordingly • Teach early recognition of symptoms • Recognize cumulative effect of sequential hot days • Reevaluate training mission if several mild heat injuries occur
Heat Stroke			
• Prolonged exposure to high temperatures • Cumulative heat stress due to repetitive activity in hot environment • Failure of body's cooling mechanisms • Prolonged and overwhelming heat stress • Predisposing factors such as sickness, poor health or certain medications	• Any of above symptoms, but more severe • Nausea, vomiting • Altered mental status with agitation, confusion, delirium, disorientation • Elevated temperature, usually above 104° F • Can progress to loss of consciousness, coma, and seizures	• This is a **medical emergency** and can lead to death! **Evacuate** Soldier to a medical facility immediately! • **Begin cooling aggressively**. Body temperature that does not go below 100° F with active cooling or ANY mental status changes calls for immediate evacuation • Initiate measures for heat exhaustion • Apply ice packs or iced sheets • Assess Soldier's mental status every few minutes • If conscious, give sips of cool water while waiting for evacuation or ambulance • Do not give water to unconscious Soldier • If possible, measure body temperature • Monitor airway and breathing • If medic or CLS is present, start intravenous (IV) fluids but limit to 500 ml NS or LR • Continue cooling process during transport (until body temperature reaches 100° F	• Follow measures for heat exhaustion • Plan medical support for heat intensive operations • Ensure appropriate Evacuation capabilities available • Ensure Preventive Medicine personnel and measures are in place

Additional Medical Considerations in the Hot Weather Environment:

Dehydration			
• Depletion of body fluids and possibly salt	• Dizziness • Weakness and fatigue • Rapid pulse	• Replace lost water and salt • Water should be sipped, not gulped • Get medical treatment	• Drink 3-6 quarts of fluid per day • Follow fluid replacement guidelines • Consume full meals and drink at mealtime • Do not take dietary supplements
Over Hydration (Hyponatremia)			
• Over hydration or water intoxication • Decreased meals or dieting • Loss of body salt • Misdiagnosis and treatment for dehydration	• Confusion • Weakness • Nausea, vomiting	• Replace salt loss • Follow measures for heat exhaustion • If symptoms persist or become more severe with rehydration, immediate evacuation	• Follow fluid replacement guidelines • Replace lost salt by consuming meals and sports drinks, as directed. • Provide snacks or carbohydrate electrolyte beverage during long training events • Do not take dietary supplements