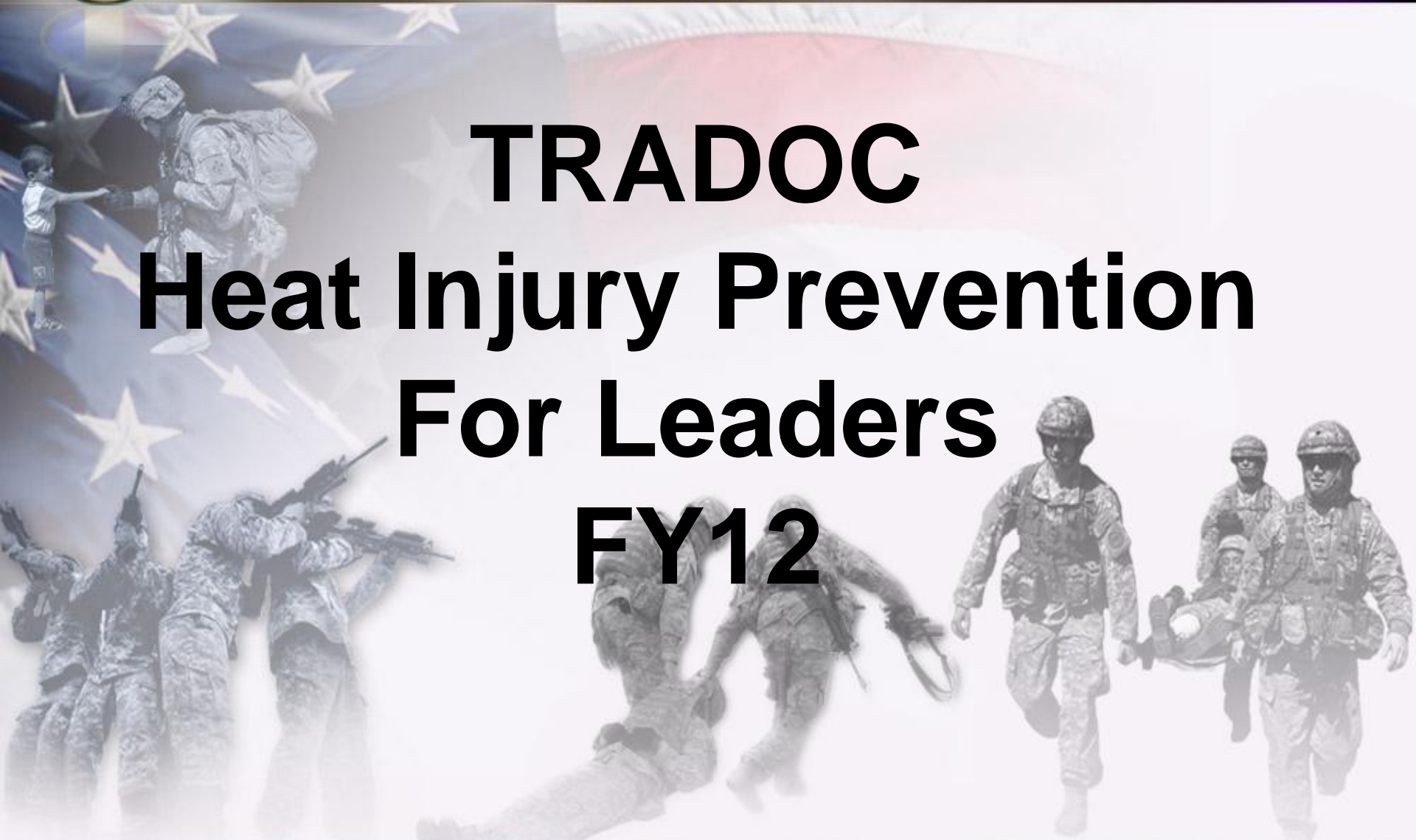




TRADOC

TRAINING AND DOCTRINE COMMAND

TRADOC Heat Injury Prevention For Leaders FY12



Victory Starts Here!



RESPONSIBILITIES

Commanders and supervisors at all levels are responsible for protecting Soldiers and civilian personnel from the adverse effects of heat and for ensuring subordinate leaders are trained in recognition and treatment of heat and injury.

TRADOC Reg 350-29



TRADOC Senior Leaders

- Ensure appropriate hot weather protective items are available to Soldiers
- Ensure potable water, ice, and supplemental snacks and beverages are available to Soldiers

Plan for 3 gallons of water per day per Soldier just for drinking. Consider providing flavored electrolyte supplements for water to increase palatability.



TRADOC Senior Leaders

- Ensure medical support and evacuation plans are tested at least annually per TRADOC Regulation 350-6, para 5-5c.
- Establish coordination between the medical treatment facility and training organizations for assistance from environmental health to:
 - (a) Present annual training
 - (b) Assist in development of local composite risk management worksheets



Unit Leaders

Download and publish copies of

Commanders', Senior NCOs', and Instructors' 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

Link to complete guide

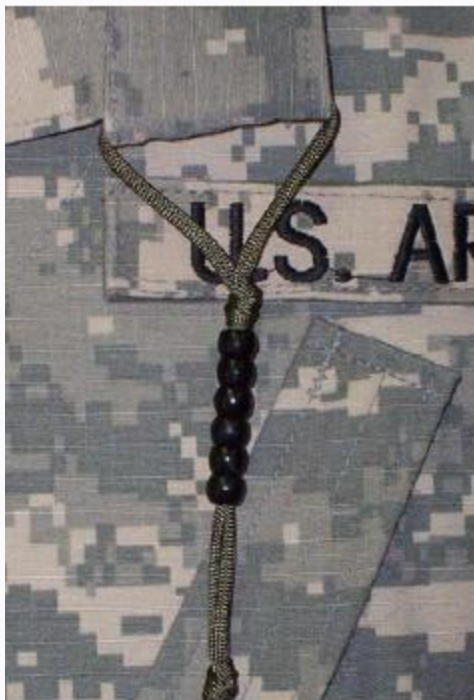
www.tradoc.army.mil/surgeon/Pdf/Heat%20Risk%20Manual.pdf



Unit Leaders

- Utilize field sanitation team members to monitor conditions of heat and advise on risk factors per TRADOC Regulation 350-6, para 5-11.
- Ensure Soldiers' clothing and equipment is present and serviceable prior to the training day; recommend modifications of the uniform to senior leadership, based on local conditions
- Identify and mark Soldiers who are at risk for heat injury

Marking Soldiers with Prior Heat Injuries



Ogden Cords
ACU



Ogden Cords
Prior HW Injury



Prior HW Injury



Prior AR/HW Injury

HW = Hot Weather
AR = Allergic Reaction

<http://www.tradoc.army.mil/csm/docs/MARKING%20slides.pdf>



Unit Leaders

- Monitor conditions of heat and cold on the training site

Recommend modifications for scheduling, location, and uniform to senior leadership.

- Plan for alternate activities and locations for conditions of extreme heat
- Be prepared to apply iced sheets in case of heat injury
- Ensure Soldiers drink sufficient amounts of fluids and consume all their meals



Unit Leaders

- Encourage Soldiers to drink frequently in small amounts and observe their fluid intake
- Ensure Soldiers maintain their supply of sunscreen and apply it daily
- Develop and enforce work/rest cycles, guard rotation, and sleep plans during extended training hours
- Be prepared to treat and evacuate Soldiers who demonstrate signs of heat injury
- Remind Soldiers to observe their buddies for signs of heat injury



Unit Leaders

- Reevaluate the training mission if two or more heat injuries occur at a given training site on the same day.

Remember

If the Soldiers have been subjected to category (CAT) IV and/or CAT V conditions for 2-3 consecutive days, then cumulative heat stress increases their chance for a heat injury on the subsequent day.



Basics of Heat Injury Risk

The threat.

Exposure to high environmental temperature produces heat stress in the body. As the body attempts to compensate, physiological strain or **heat load** results.

This strain, usually in combination with other strains caused by work, dehydration, and fatigue may lead to heat injury.

Environmental conditions, namely air temperature, vapor pressure of water in the air (humidity), and air movement influence the heat equilibrium of the body and its physiologic adjustments.



Basics of Heat Injury Risk

The defense.

The body rids itself of heat normally through the skin and by exhaled breath, constituting *heat relief*. Some heat is discharged by radiation from the skin, but the body relies mostly on evaporation of sweat from the skin to cool.



Basics of Heat Injury Risk

The defense.

The adverse impact of high environmental temperature can be reduced by drinking enough water, wearing clothing properly, maintaining a high level of fitness, and resting after exposure to heat. These measures contribute to the body's normal mechanisms for relieving its heat load.



Basics of Heat Injury Risk

Acclimatization.

Most Soldiers' physiological responses to heat stress improve in **10-14 days** of exposure to heat and regular strenuous exercise.

Factors to consider in acclimatizing Soldiers are the wet bulb globe temperature (WBGT) index ; work rates and duration; uniform and equipment; and Soldiers' physical and mental conditions.



Risk Factors for Heat Injury

- 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 (Last 72 hours must be considered)
- A**cclimatization (and other individual risk factors – see table below)
- T**ime (length of heat exposure and recovery time)



Risk Factors for Heat Injury

- ***Not acclimatized to heat.***
- Exposure to any of the following in the previous 2-3 days:
 - Increased heat exposure
 - Increased exertional levels
 - Lack of quality sleep
- Poor fitness - unable to run ***2 miles in less than 16 minutes***
- Overweight
- Minor illness



Risk Factors for Heat Injury

- Taking medications (either prescribed or over the counter) and supplements/dietary aids
- 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 more than 40 years



Types of Heat Injury

Heat cramps

caused by an imbalance of electrolytes in the body as a result of excessive sweating. This condition causes the casualty to experience cramping in the arms, legs, and abdomen and sweat excessively, with or without thirst.



Types of Heat Injury

Heat exhaustion

caused by loss of body fluids (dehydration) through sweating without adequate fluid replacement. It can occur in an otherwise fit individual who is involved in physical exertion in any hot environment, especially if the service member is not acclimatized to that environment. These signs and symptoms are excessive sweating with pale, moist, cool skin; headache; weakness; dizziness; loss of appetite; cramping; and nausea (with or without vomiting).



Types of Heat Injury

Heat stroke

caused by exposure to high temperatures (such as direct sunlight) or being dressed in protective over garments, which causes the body temperature to rise. Heat stroke occurs more rapidly in service members who are engaged in work or other physical activity in a high heat environment.

AND



Types of Heat Injury

Heat stroke

caused by a failure of the body's cooling mechanism, which includes a decrease in the body's ability to produce sweat. The victim may experience weakness, dizziness, confusion, headaches, seizures, nausea, stomach pains or cramps, and respiration and pulse may be rapid and weak. Unconsciousness and collapse may occur suddenly.



Treatment.

All treatment must be supervised by a constant observer.

Soldiers with mild heat injuries should be placed in the shade and given fluids to drink. Evacuate if symptoms worsen or do not improve after 30 minutes of rest and rehydration.

Do not start intravenous fluids.

This should be done by emergency personnel.



Treatment.

Suspected heat stroke.

- Call emergency medical service (EMS).
- Place the Soldier in the shade and remove outer clothing.
- Apply iced sheets
- Continue cooling until EMS arrives.
- **Do not attempt to evacuate the Soldier yourself**
focus on cooling



Iced Sheets

Provide iced sheets IAW risk assessment and local guidance.

- Prepare iced sheets by placing ordinary bed sheets in iced water.
 - (1) Keep iced water ready in Igloo[®]-type ice chests.
 - (2) Have sheet readily available, either soaking in iced water or in resealable plastic bags.
- When needed, immerse sheet in iced water and ensure it is saturated; this can be done as Soldier's outer clothing is being removed.



Iced Sheets

- Depending on the risk, the ice chests can be maintained at training sites by drill sergeants; carried on ambulances or nonstandard evacuation vehicles; and maintained at troop medical clinics.
- Iced sheets should be applied anytime a Soldier has a change in their mental status and consideration is given to environmental heat exposure being the cause of this change



Iced Sheets

The mental status changes of heat injury are more important than the Soldier's temperature when deciding on the treatment of heat injuries

Mental status changes include
confusion, inability to properly follow commands, loss of
consciousness



Iced Sheets

Questions to assess mental status

- (1) What is your name?
- (2) What month is it? What year is it?
- (3) Where are you?
- (4) What were you doing before you became ill?



Iced Sheets

Iced sheets should always be applied as follows:

- Cover as much exposed skin as possible with the ice-cold sheets.
- Also cover the top of the head.
- When sheets warm up, put them back into cooler and then reapply.



Iced Sheets

Iced sheets should be re-iced and re-applied whenever the iced sheets become warm

Cooling should be continued until EMS arrives. Do not disrupt cooling on the basis of a temperature measurement

Evacuate any Soldier who requires cooling with iced sheets to the nearest emergency room via EMS



Composite Risk Management

Composite Risk Assessment Worksheet

Heat Injury

- should be filled out completely prior to each training event
- should be developed specifically for each training site
- should not be a template document use to “check the block”

Composite Risk Management is never complete.

It is a continuing cycle



RESOURCES

TRADOC REG 350-29 <http://www.tradoc.army.mil/tpubs/regs/tr350-29.pdf>

TRADOC REG 350-6 <http://www.tradoc.army.mil/tpubs/regs/tr350-6.pdf>

Commander's, Senior NCO's and Instructor's Guide to Risk Management of Heat Casualties” <http://www.tradoc.army.mil/surgeon/Pdf/Heat%20Risk%20Manual.pdf>

Ogden Cord Markings <http://www.tradoc.army.mil/csm/docs/MARKING%20slides.pdf>

Composite Risk Management Safety Website <https://safety.army.mil/crm/>

Composite Risk Management Field Manual
https://armypubs.us.army.mil/doctrine/DR_pubs/dr_aa/pdf/fm5_19.pdf