

WEED ARMY COMMUNITY HOSPITAL PREVENTIVE MEDICINE SERVICE FORT IRWIN CALIFORNIA

WELCOME TO THE NATIONAL TRAINING CENTER , FORT IRWIN, CA.

The National Training Center, Fort Irwin is a beautiful place to live, work and train. It consists of a total of 642,820 acres and lies within the Mojave Desert. Four mountain ranges are found within the boundaries of Fort Irwin. As in most desert environments, surface water consists of a few springs and rain is sparse.

The climate is typical of the arid southwestern desert with prevailing clear skies, low humidity, gusty winds, and warm to hot temperatures. Cold nights and cool days characterize the winter months (Oct-Mar). During this time, high wind speeds can equate a wind chill approaching 0 degrees Fahrenheit. The summer months (Apr-Sep), are characterized by hot, dry, dusty days, and warm nights. Most days of July-August exceed 100 degrees Fahrenheit. Heat injuries pose a serious medical threat to those who live and train here. Precautions must be taken to prevent them. In summer and winter high winds can produce large amounts of airborne dust (sandstorms).

Federal law protects many plants and animals on Fort Irwin. None should be removed from the military reservation. Vegetation is sparse; however, four vegetation series thrive here: creosote bush, saltbush, mesquite and blackbrush. While you are here you will observe coyotes, jackrabbits, ground squirrels and mice. Less noticeable are the bobcats and kit foxes. Fort Irwin boasts many different kinds of birds and reptiles to include rattlesnakes and the endangered desert tortoise. As a general rule "Leave all of the desert critters alone".

The National Training Center has two main types of water systems, which supply main post and all other parts of the training area. There is a domestic water system, which is similar to community water systems throughout the United States, and the Reverse Osmosis (RO) Water distribution system. All of the water drawn for both of these systems comes from several desert wells located throughout the reservation. All the water points with the exception of the wash racks are potable and fit to drink.

Again welcome to the High Desert region of California. Train hard. Train safe. Help protect soldiers and the desert.

NTC HEALTH THREATS AND PREVENTIVE MEDICINE COUNTERMEASURES

Heat Injuries:

- Force Water Consumption (Remember that water consumption alone will not prevent heat injuries)
- Incorporate work/rest cycles. Make use of whatever shade is available
- Monitor and Adhere to the Wet Bulb Globe Temperature (WBGT) Index (phone #3750 Emergency Operations Center for updates and the WBGT Index for garrison operations only) Readings for units in the field should be taken on site
- Insure adequate supplies of water are available at all times, in all training areas
- Can be a problem in winter. Consider that extra equipment (MOPP, and Body armor) will add 10 degrees to the index

Cold Injuries:

- Consider the wind chill factor
- Keep feet clean and dry. Change socks daily, avoid immobilization, keep moving
- Keep hands/head protected
- Wear the uniform properly(sleeves down and temperate BDU's, field jacket, gloves)
- Utilize Lip balm, hand lotion, goggles or other eye protection

Enteric Disorders (Food/Water):

- Practice good field food service sanitation: Proper food storage, protection, and temperature
- Promote Personal Hygiene: Hand washing is a must
- Insure water trailers have been cleaned and sanitized prior to use: IAW TB MED 577
- Insure water supplies are chlorinated (2 PPM at point of generation, 1 PPM at consumption)

Accidents/Occupational Injuries:

- Motor Vehicle Safety/Use Seat Belts
- Obey Speed Limits/The desert is Hazardous
- Protect against carbon monoxide poisoning: ventilate properly

Arthropods and Disease:

- Use precaution when reaching into boots, equipment, rocky areas, etc. Avoid hidden spaces
- Leave "Desert Critters" alone: Know proper snake bite first aid procedures
- Control flies through good sanitation and proper waste disposal
- Protect yourself wear the uniform properly
- Employ all of your company level field sanitation teams
- Dispose of garbage and trash properly and in a timely manner
- Protect and safeguard endangered species (Desert Tortoise)

HEAT INJURY PREVENTION

Units at the National Training Center and Fort Irwin must be prepared for hot weather conditions. The environmental extremes at Fort Irwin are a severe test of leadership and command skills. Although wartime missions may require taking risk of heat injuries in order to ensure success, peacetime training does not warrant similar risks. Military personnel are at increased risk of heat injury while engaged in nonmilitary recreational activities, as well as while performing official duties. The majority of heat injury cases seen at Fort Irwin are from rotational units. **These units are at an increased risk of heat injury, due to lack of acclimatization to the unique Fort Irwin environment.** Commanders must ensure they have an active heat injury program by utilizing their field sanitation team to coordinate and monitor the program. The program should consist of the following:

- **Education:** Commanders will ensure every soldier is informed of the potentially serious results of heat injury, early recognition of signs and symptom of heat injuries, how they can be prevented, and first aid treatment. Training on heat injuries will be provided early into the hot weather season and periodically thereafter as deemed necessary.
- **Adequate Water Supply and Intake:** Commanders will ensure personnel are provided with an adequate supply of water, and drink adequate quantities of potable water. Soldiers may need to drink up to 1 1/4 canteens of water every hour. The field standard set by the NTC Surgeon for chlorine residual is 2 PPM at point of generation, and 1 PPM at point of consumption.
- **Acclimatization:** A period of 14 days is the standard time recommended for soldiers to become fully acclimatized to a new temperature region. Seasoned soldiers that are in good physical condition can take as little as 7-10 days to become acclimatized. This period needs to be planned for when arriving at Fort Irwin.
- **Wet Bulb Globe Temperature (WBGT) Index Guidelines:** This is the system in which the air temperature, relative humidity, and radiant heat are measured together to determine the heat stress on the body. Work rest cycles and water consumption recommendations are given for each of the level of WBGT index categories. **An updated recommendation table for heat categories is listed below:**

Heat Category	WBGT Index	<u>Water intake per hour</u>		
		EASY WORK	MODERATE WORK	HARD WORK
1	78 to 81.9	1/2	3/4	3/4
2 (Green)	82 to 84.9	1/2	3/4	1
3 (Yellow)	85 to 87.9	3/4	3/4	1
4 (Red)	88 to 89.9	3/4	3/4	1
5 (Black)	90 and Above	1	1	1

CAUTION: MORE THAN 1 1/4 QUARTS OF WATER COULD CAUSE A LIFE THREATENING CONDITION CALLED HYONATRENIA OR OVERHYDRATION!! DAILY WATER CONSUMPTION SHOULD NOT EXCEED 12 QUARTS. WEARING BODY ARMOR ADD 5° F TO WBGT INDEX, WEARING MOPP OVERGARMENT ADD 10° F TO WBGT INDEX. * NEW USARIEM STANDARD ADOPTED DEC 1998.**

TYPES OF HEAT INJURIES

- **SUNBURN** is caused by excessive exposure to the ultraviolet rays of the sun. A bad sunburn may not only be uncomfortable, it can cause a person to become ill. Frequent, unprotected exposure to the sun produces skin damage and may be a cause of skin cancer later on in life. The use of an approved sunscreen of SPF 15 or above can provide some protection from the harsh effects of the sun.
- **HEAT CRAMPS** may result from exposure to high temperatures for a relatively long time, particularly if accompanied by heavy exercise, with excessive loss of salt and moisture from the body. Heat cramps are characterized by painful cramping of the muscles involved with the exercise / activity being done.
- **HEAT EXHAUSTION** is a result of excessive loss of salt and water from the body. A person may experience profuse sweating, difficulty breathing, nausea, and vomiting. In this condition, the person becomes pale, weak, dizzy, and confused.
- **HEAT STROKE** is the most serious of the four types of heat injuries, and is often fatal. **HEAT STROKE IS A MEDICAL EMERGENCY AND REQUIRES IMMEDIATE MEDICAL ATTENTION!** It is caused by damage to the heat regulating mechanism of the brain, and is characterized by an extremely high body temperature (Often over 106 degrees Fahrenheit); hot, red, dry skin; and an absence of sweating. Pulse and respiration's are rapid and convulsions, coma, or even death may occur.

FACTORS INFLUENCING HEAT INJURY

- **Illness:** Individuals suffering from an acute or chronic disease or recovering from one, are more susceptible to heat injuries than individuals who are free of disease.
- **Immunizations:** An individual who has recently received immunizations will be more susceptible to heat injuries for a few days. This is because the body defense mechanisms are responding in a way similar to in which occurs in a person suffering from a disease or infection.
- **Previous history of heat injury:** An individual who has a history of previous heat exhaustion or heat stroke is likely to be more susceptible to another heat injury than an individual who has no history of heat injury.
- **Skin trauma:** Individuals suffering from sunburn, prickly heat, or heat rash will not be able to adequately cool their bodies. This is due to a reduced ability of the affected body areas to perspire and cool the body.

- **Dehydration:** Individuals who are dehydrated will not be able to sweat adequately. Causes of dehydration include vomiting, diarrhea, insufficient water intake, and perspiration.
- **Obesity:** An excess amount of body fat can greatly reduce the ability to tolerate heat. Obesity, often found in individuals in poor physical condition, can interfere with the body's cooling mechanisms as it places more stress on the heart, and slows the dissipation of heat.
- **Poor physical condition:** Being unfit is also a factor, which can increase the risk of heat injury. An improved ability to tolerate physical work in the heat has been found in individuals with good physical training habits. Lack of sleep and recent use of alcohol (within the past 24 hours) can also contribute to reduced heat tolerance.

COLD INJURY PREVENTION

Prevention of cold weather injuries is vital to a force that must train in cold weather. These injuries may cause a serious loss of manpower. Although the desert is traditionally considered a hot environment, conditions capable of inflicting cold weather injuries have been encountered during winter training in this area. All cold weather injuries are preventable. There is not acceptable excuse for losing a soldier to the cold, especially in a training environment.

Any of the below listed cold injuries can occur in this desert environment. Refer to the list of references for identification, symptoms, prevention and treatment of each. This information is vital to cold injury education.

- **Trench and Immersion Foot** occurs when feet or lower extremities are **exposed** to cold and wet conditions.
- **Frostbite** occurs when tissue freezes. In some cases damaged extremities may require amputation.
- **Hypothermia** is due to overexposure and inadequate protection.

Another concern during cold weather is **carbon monoxide poisoning**, which can result from improper ventilation of engines or heaters. Carbon monoxide is an odorless, colorless gas given off as a by-product of incomplete burning of fossil fuels. Ensure that adequate ventilation is present when fuels are being burned. This can be accomplished by checking for adequate ventilation in shelters and vehicles. Do not use non-vented engines or heaters as a heat source. Never use kerosene heaters indoors: the Army Safety Office has approved this for use, in the Bosnia theatre only!

PREVENTION OF COLD INJURIES

- Adopt the buddy system.
- Do not touch cold metal with bare hands or lips since they may freeze to them.

- Fuel handlers must be extra careful. Spilled fuel has a super cooling effect upon the skin and may cause instant frostbite. Rotate people out of exposed or static positions to warming areas as often as possible.
- A warming tent must be available for use during cold weather operations. Hot soup or coffee should also be made available (preferably soup because of the nutritional value).
- Use the wind-chill chart (Contained in FM 21-10-1). Always dress for the wind-chill.
- Squad leaders should routinely check their people for signs of cold injuries.

If a soldier is suspected of having a cold weather injury, it must be brought to the attention of medical personnel immediately. Potential injuries can be avoided by prompt attention to complaints. Personnel should be familiar with principles of emergency first aid treatment for cold injuries.

DISPOSAL OF REGULATED MEDICAL WASTE

What is Medical Waste? Medical Waste is divided into bio-hazardous waste and sharps waste categories. **Bio-hazardous waste can be any of the following:**

- Laboratory waste, pathological cultures, cultures of infectious agents wastes from the production of bacteria, viruses, live or attenuated vaccines, culture dishes, etc.
- Microbiological specimens after laboratory analysis.
- Waste which contains recognizable fluid blood, fluid blood products, containers, or equipment containing fluid blood.
- Waste containing discarded materials contaminated with excretion, exude, or secretions from humans or animals are required to be isolated for protection against transmission of highly communicable disease.

Sharps waste is defined as any device having acute rigid corners, edges, or protuberances capable of cutting or piercing, including:

- Hypodermic needles, syringes, blades, and needles with attached tubing. Hypodermic needles must not be broken. The entire sharp must be placed into a Sharps container after use.
- Broken glass items, such as Pasteur pipettes or blood vials contaminated with medical waste.

What is not Regulated Medical Waste? Regulated Medical Waste does not include any of the following:

- Waste such as disposable containing non-fluid blood, e.g. dressings, gauze, cotton rolls, drapes with small amounts of dried blood, or other body fluids.
- Hazardous Waste, radioactive waste, or household waste.
- Waste containing microbiological cultures used in food processing and biotechnology.

Containment of Medical Waste requires the following:

- Medical waste must be contained and stored separately from other waste at point of origin.
- Biohazardous waste shall be contained in biohazard bags (3-mil thickness).

- Sharps waste will be placed in rigid, puncture-resistant, leak-resistant containers, and labeled “Biohazard”, or “Infectious Waste”.
- Red Biohazard bags shall be securely tied and placed in rigid containers for storage, handling, and transport.
- Transportation of Regulated Medical Waste in a P.O.V. on Fort Irwin is unauthorized and punishable by state and local fines.

All regulated Medical waste will be turned-in to Weed Army Community Hospital through the Facilities Department; P.O.C. is Joyce Johnson, Facilities Manager at DSN 470-3994/5214, or Commercial at (760) 380-3994/5214. Alternate P.O.C. is 1LT Sherbert, the Environmental Science Officer at (760) 380-5328/3235, or DSN 470-5328/3235.

OTHER PREVENTIVE MEDICINE CONCERNS

Preventive Medicine /Field Sanitation assets and equipment: The importance of bringing organic, Division Preventive Medicine assets to Fort Irwin to both support and train with rotational units cannot be overemphasized. Preventive Medicine personnel train field sanitation teams of each company sized unit at their home installations. These personnel need to be available to evaluate the effectiveness of their training program, by inspecting field sanitation teams in the “box”. Preventive Medicine personnel must accompany rotational units for technical assistance and inspection requirement in training, as well as in combat. The Preventive Medicine Service of Fort Irwin MEDDAC is not designed to support units in training in more than a consultation capacity. Units must bring field sanitation equipment and personal with them when deploying to the NTC. These important assets will help units in reducing the overall number of disease and non-battle injuries associated with training and combat operations.

Past Rotation unit problems have included: Not properly maintaining chlorine levels in water trailers, poor temperature control of hazardous foods, inadequate food protection, serving leftovers in the field, improper disposal of human and other wastes, heat and cold injuries. All these problems are preventable by proper deployment of field sanitation assets, and Preventive Medicine assets organic to divisions.

P.O.C. FOR THIS MEDICAL THREAT BRIEFING OR ANY OTHER PREVENTIVE MEDICINE ISSUE IS 1LT SHERBERT (LEAD 24E), ENVIRONMENTAL SCIENCE OFFICER, PREVENTIVE MEDICINE SERVICE, AT (760) 380-5328/3235/3202, OR DSN 470-5328/3235/3202.

References:

1. TB MED 507, Prevention, Treatment and Control of Heat Injury
2. TB MED 508, Prevention, Treatment and Control of Cold Injuries
3. FM 10-52-1, Commander’s Handbook for Water Usage in Desert Operations
4. FM 21-10, Field Hygiene and Sanitation
5. FM 21-10-1, Unit Field Sanitation Team
6. FM 8-250, Preventive Medicine Specialist
7. TB MED 269, Carbon Monoxide Symptoms, Prevention of Overexposure
8. California Health and Safety Code, Division 20, Chapter 6.1

Fluid Replacement Guidelines for Warm Weather Training

(Applies to average acclimated soldier wearing BDU, Hot Weather)

Heat Category	WBGT Index, °F	Easy Work		Moderate Work		Hard Work	
		Work /Rest	Water Intake, Qt/hr	Work /Rest	Water Intake, Qt/hr	Work /Rest	Water Intake, Qt/hr
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 hours of work in the specified heat category. Individual water needs will vary \pm ¼ qt/hour.
- 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.**
- Wearing body armor add 5°F to WBGT Index
- Wearing MOPP overgarment add 10°F to WBGT Index.

Easy Work	Moderate Work	Hard Work
<ul style="list-style-type: none"> • Walking Hard Surface at 2.5 mph, ≤ 30 LB Load • Weapon Maintenance • Manual of Arms • Marksmanship Training • Drill and Ceremony 	<ul style="list-style-type: none"> • Walking Hard Surface at 3.5 mph, < 40 LB Load • Walking Loose Sand at 2.5 mph, no Load • Calisthenics • Patrolling • Individual Movement Techniques. i.e. low crawl, high crawl • Defensive Position Construction • Field Assaults 	<ul style="list-style-type: none"> • Walking Hard Surface at 3.5 mph, ≥ 40 LB Load • Walking Loose Sand at 2.5 mph with Load

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