

UNITED STATES MARINE CORPS
FIELD MEDICAL TRAINING BATTALION-EAST
PSC BOX 20042
CAMP LEJEUNE, NORTH CAROLINA 28542-0042

MCECST

TREAT HEAT AND COLD INJURIES

TERMINAL LEARNING OBJECTIVES

1. Given a casualty and materials treat a heat injury to prevent further injury or death, in compliance with (PHTLS) Pre-Hospital Trauma Life Support (Current Edition).
(2401-MED-1003)
2. Given a casualty and materials treat a cold injury to prevent further injury, in compliance with (PHTLS) Pre-Hospital Trauma Life Support (Current Edition).
(2401-MED-1004)

ENABLING LEARNING OBJECTIVES

1. Without the aid of reference, identify heat injury symptoms, in accordance with reference Pre-Hospital Trauma Life Support (Current Military Edition). (2401-MED-1003a)
2. Without the aid of reference, identify heat injury treatments, in accordance with reference Pre-Hospital Trauma Life Support (Current Military Edition). (2401-MED-1003b)
3. Without the aid of reference, identify cold injury symptoms, in accordance with reference Pre-Hospital Trauma Life Support (Current Military Edition). (2401-MED-1004a)
4. Without the aid of reference, identify cold injury treatments, in accordance with reference Pre-Hospital Trauma Life Support (Current Military Edition). (2401-MED-1004b)

1. **HEAT INJURIES**: Heat injuries are environment injuries sustained when exposed to extreme heat. These injuries may occur even with proper planning and equipment. It is important that you recognize the symptoms and be able to take the proper actions to help a heat casualty.

Heat injuries can be divided into three categories. From the least to the most severe, they are heat Cramps, heat exhaustion, and heat stroke.

a. Heat Cramps: Muscles begin to cramp when there is an imbalance of chemicals (Called electrolytes) in the body due to excessive sweating.

(1) Symptoms for heat cramps:

(a) Muscle cramps, usually in the arms, legs or abdomen

(2) Corrective actions/treatment for heat cramps:

(a) Move to a shady area or improvised shade.

(b) Loosen the clothing.

(c) Slowly drink at least one canteen of water or sports drink. If salt is available add up to $\frac{1}{4}$ teaspoon salt if available.

(d) Seek medical aid should cramps continue and complete the Casualty Response Card.

b. Heat Exhaustion is caused by loss of water through sweating without adequate fluid replacement.

(1) Symptoms of heat exhaustion:

(a) Weakness or extreme fatigue

(b) Headache, Dizziness, confusion, or nausea

(c) Wet clammy/cool skin

(d) Unsteady while standing

(2) Corrective actions for heat exhaustion:

(a) Move to a cooler location, shady area or improvise shade.

(b) Loosen or remove clothing and boots (unless in a chemical environment).

(c) Pour water on the head and upper body and fan

(d) Slowly drink athletic drinks diluted to half strength or fluids with sodium/salt content.

(e) Monitor the casualty until the symptoms are gone. If the symptoms persist, seek medical aid and complete the Casualty Response Card.

b. Heat Stroke is the most emergent and life threatening form of heat illness. It is caused when the body can no longer cool itself and body's temperature begins to rise. Immediate action is required.

(1) Symptoms of heat stroke are:

(a) The casualty's skin is hot, red and dry.

(b) The person experiences dizziness and confusion.

(c) Headaches and seizures are possible.

(d) Nausea is a common sign.

(e) Respiration and pulse may be fast but weak.

(f) Unconsciousness or combativeness.

(2) Corrective action for heat stroke:

(a) Move casualty to a cool shady area or improvised shade.

(b) Remove outer garments and/or protective clothing if the situation permits.

(c) Immerse in cool/cold water, or pour water on the casualty and/or continuous fanning.

(d) Have the casualty slowly drink water (if conscious)

(e) Seek medical aid immediately! The casualty should be transported to a medical treatment facility as soon as possible, accompanied by his/her Casualty Response Card.

2. PREVENTIVE MEASURES FOR HEAT INJURIES

a. Stay hydrated: The hotter the temperature and the harder you work determine the amount of fluid your body will lose through sweating. Sweat cools the body, subsequently if you do not have enough fluid to sweat properly; your body will begin to heat up and shut-down. Fluids must be replaced to avoid the threat of becoming a heat casualty. Water and sports drinks will rapidly hydrate the body, thus allowing the body to naturally cool itself down.

b. Keep salt in your diet: The body needs salt to function properly, and when the body sweats salt/sodium is lost. If this salt is not replaced, you can become a casualty. A normal salting of your food and/or sports drinks will supply the body with a sustainable amount. Never take salt tablets.

c. Acclimatization: This is the process of allowing your body to become familiar to new climatic conditions. Full acclimatization to the heat (the ability to perform a maximum amount of strenuous work) can be achieved in a short period of time if moderate work is begun at the time of first exposure and is increased progressively within the limits of the individual's tolerance.

3. COLD INJURIES: These types of injuries are most likely to occur when an unprepared individual is exposed to moderate to severely cold temperatures. Precipitation, windy conditions, duration of exposure, and adequacy of protection determine the speed at which a cold injury is contracted.

a. Types of cold injuries: The three types of cold injuries we will discuss will be frostbite (superficial and deep), hypothermia, and dehydration.

The body parts most easily frostbitten are the feet, hands, and face.

(1) Superficial frostbite: primarily involves the skin and the tissue (subcutaneous) just beneath the skin and can

result in clear blisters when warmed.

(a) Symptoms of superficial frostbite

1 Appears white or yellowish plaque at the site of injury and redness on the surrounding area.

2 The affected area is numb

3 Blistering can occur 12-36 hrs after exposure

(2) Deep frostbite (freezing): is always preceded by superficial frostbite and involves freezing of the subcutaneous (below the skin) tissue, and possibly even muscle and bone.

(a) Symptoms of deep frostbite

1 Painless, white or yellowish waxy looking

2 Swollen or wooden to the touch

3 Poor to no muscle movement

(b) Corrective actions/treatment for deep and superficial frostbite:

1 Cover face of victim with your bare hands.

2 Place frozen hands under the casualty's armpits and loosen restrictive clothing to increase insulation.

3 Remove boots and socks and place frozen feet under clothing.

4 Transport casualty with deep frostbite as soon as possible

(c) Precautions for any type of frostbite:

1 Do not soak in cold water

2 Do not attempt to thaw deep frostbite.

3 Do not warm the part by massage or exposure to open flame.

4 Do not use ointments or other medications.

5 Do not use alcohol or tobacco because this reduces the body's resistance to cold.

(3). DEHYDRATION: Is a lack of water in the body. Many people do not realize that dehydration can occur in cold climates. The symptoms of cold weather dehydration are similar to those encountered in heat exhaustion.

(a) Symptoms of dehydration are:

(1) The mouth, tongue, and throat become parched and dry, and swallowing becomes difficult

(2) Nausea

(3) Dizziness and fainting

(4) Feeling tired or weak

(5) Muscle Cramps (especially in the legs)

(6) Focusing eyes may also become difficult

(b) Corrective actions/treatment for cold related dehydration

(1) Keep casualty warm

(2) Loosen clothing to allow proper circulation

(3) Begin fluid replacement immediately

(4) Rest

(5) Complete Casualty Response Card

(6) Seek medical treatment

(4) HYPOTHERMIA: This cold weather injury occurs when the body's core temperature drops below normal range, becoming too low to maintain bodily functions. Hypothermia can occur from exposure to temperatures above freezing, especially from immersion in cold water, wet-cold conditions, or from the effect of wind. Physical exhaustion and insufficient food intake may also increase the risk of hypothermia.

(a) Symptoms of hypothermia

- (1) Shivering (body's attempt to generate heat).
- (2) Drowsy or mentally slow.
- (3) Stiffness, uncoordinated.
- (4) Speech may be slurred.
- (5) Breathing becomes slow, shallow, and the pulse becomes weaker and absent.
- (6) Unconsciousness/death may follow quickly.

(b) Corrective actions for hypothermia:

- (1) Prevent further heat loss
- (2) If transportation is immediately available, transport casualty
- (3) Move casualty to shelter
- (4) Wet clothing should be removed
- (5) Cover head & body with blankets, towels etc.
- (6) Provide **warm**, high-caloric or glucose (sugar) fluids. Not cold, or even room temperature..WARM fluids.
- (7) Complete the Casualty Response Card

4. **PREVENTION MEASURES FOR COLD INJURIES**

a. Prevention of frostbite or any cold weather injury depends largely upon proper clothing and maintaining your body temperature. Lessen the possibility of suffering a cold weather injury by doing the following:

- (1) Adequate nutrition, hot meals and warm fluids.
- (2) Sufficient clothing to protect against cold and wind with layers of loose-fitting clothing that can be removed and replaced as needed.
- (3) Never travel alone. Inform others of your travel plans

- (4) Sufficient rest.
- (5) Avoid alcohol and dehydration.
- (6) Avoid tight fitting socks, and shoes
- (7) Find adequate shelter for periods of inactivity.

REFERENCE (S) :

(PHTLS) Pre-Hospital Trauma Life Support (Current Edition)
Chapter 21, Page 542