

# Outdoor Safety

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Heat Protection

# Applicability

This presentation has been prepared for those who will work outdoors in the heat.



# Heat Balance & Exchange

The human body works to maintain a core body temperature of about  $98.6^{\circ}\text{F}$  ( $\pm 1.8^{\circ}\text{F}$ ). The body has to deal with metabolic heat and the heat gained from the environment.



**Some factors affecting heat exchange with the environment:**

- Air temperature
- Humidity
- Skin temperature
- Air velocity
- Sweating
- Radiant temperature
- Clothing

# Protective Mechanism

The body dissipates heat by sweating. When sweating is insufficient, heat can build within the body which can lead to heat disorders as the core body temperature increases above  $98.6^{\circ}\text{F}$  ( $\pm 1.8^{\circ}\text{F}$ ). A person will die once their core body temperature reaches about  $109^{\circ}\text{F}$ .



# Acute Heat Disorders

Severity ↑

Heat Stroke

Heat Exhaustion & Cramps

Heat Rash (& Other Problems)



# Heat Stroke

The most serious acute heat disorder, which always requires medical attention. Treat victims with first-aid while seeking medical help. Signs and symptoms of heat stroke include:

- **Mental confusion** <sup>Key</sup>
- **Hot, dry skin (However the skin may be moist too.)**
- **Skin is typically red but may be mottled or pale blue-gray**
- **Possible loss of consciousness**
- **Breathing may be fast and deep**
- **Core body temperature is elevated**

## First-Aid

- Remove from heat source.
- Cool as rapidly as possible in a gentle way
- Administer ½ cup of cold water every 15 minutes.
- Treat for shock (lay them down and elevate their head and feet).

Seek medical attention ASAP if you suspect someone is suffering from heat stroke!

# Heat Exhaustion & Cramps

Signs and symptoms include:

- Undue fatigue
- Headache
- Nausea
- Pale skin
- Feeling faint
- Cramps

Treatment – sit or lie down in cooler air, hydrate well, and observe closely for signs & symptoms of heat stroke.

# Heat Rash (& Other Problems)

Signs and symptoms include:

- **Clogged sweat glands**
- **Discomfort**
- **Reduced ability to cool off**

**Treatment – have victim sit or lie down in cooler air, hydrate well, & have them clean their skin.**



# Protection

The following measures can be taken to protect against acute heat disorders:

- Acclimatizing to the hot environment
- Staying properly hydrated
- Wearing proper clothing
- Replacing electrolytes (if sweating)
- Selecting and using proper medication (if needed)



# Acclimatization

People generally in good health will acclimatize in about a week after working periodically in a hot environment (that is, over a narrow range of environmental conditions). Acclimatization decreases quickly once the individual ceases working in the hot environment – almost all of it is gone in about a week.

A person who is acclimatized can deal with heat better than they would otherwise because the body alters the volume of blood flow and improves the ability to maintain arterial pressure.



# Clothing

Clothing should be designed to keep you cool and wick moisture away (helps remove heat from your body).

Don't forget about UV protection.



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