



Protecting Employees from the Effects of Heat

Guidelines for Keeping Your Cool

Contents

- Normal cooling mechanisms
- Heat related illnesses
- First Aid
- Evaluating the risk of heat related illnesses
- Controlling heat related illnesses



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NORMAL COOLING MECHANISMS

How does the body regulate heat?

Body Core

- Heart
- Lungs
- Brain
- Other vital organs

Periphery

- Arms
- Legs
- Tissues close to the skin

The core and periphery compete with each other for blood supply

Normal Cooling Mechanisms

With an increase in body core temperature the body should respond as follows:

- Increase blood flow to the skin
- Sweating increases
- Heart rate increases
- Heat is pushed to the skin causing body core temperature to decrease to a safe level

Why Cooling Mechanisms Fail

- So much sweat is lost that dehydration results
- The body cannot sweat so the core temperature rises
- Sodium loss causes heat cramps
- Extreme amount of blood flow to skin which deprives the vital organs of blood.



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HEAT RELATED ILLNESSES

Factors Leading to Heat Stress

- High temperature and humidity
- Direct sun or heat
- Limited air movement
- Physical exertion
- Poor physical condition
- Certain medications
- Inadequate tolerance for hot workplaces
- Insufficient water intake

Heat Rashes

- Most common problem in hot work environments is when skin remains wet due to unevaporated sweat.
- Looks like a red cluster of pimples or small blisters. Most likely in creases of the skin.
- Best treatment is keep area dry – **avoid** using ointments and creams that keep skin warm and moist.

Heat Cramps

- Caused by performing hard physical labor in a hot environment. Also attributed to electrolyte imbalance caused by sweating with a lack of water replenishment.
- Results in painful muscle cramps.
- Imperative that workers in hot environments drink water every 15 to 20 minutes .
- Also must **replace electrolytes** with liquids such as sports drinks.

Heat Exhaustion

- Result of the combination of excessive heat and dehydration.
- Signs and symptoms are headache, nausea, dizziness, weakness, thirst, and giddiness. Fainting or heat collapse is often associated with heat exhaustion.
- Remove the worker from the hot environment and give fluid replacement. Cool skin with ice packs if possible.



Heat Stroke

- Most Serious heat related disorder and occurs when the body's temperature regulation fails and body temperature rises to critical levels.
- **Heat stroke is a medical emergency that may result in death.**

Heat Stroke Symptoms

- Confusion
- Irrational behavior
- Loss of consciousness
- Convulsions
- A lack of sweating (usually)
- Hot, dry skin
- Abnormally high body temperature

A close-up, low-angle shot of a yellow and white umbrella against a clear blue sky. The umbrella's fabric is taut and shows some texture. The white pole of the umbrella is visible on the left side.

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FIRST AID FOR HEAT STROKE

Call 911!

- Until professional medical treatment is available, the worker should be placed in a shady, cool area and the outer clothing should be removed.
- Pour cool water over the worker and circulate air to improve evaporative cooling.
- Provide water to drink as soon as possible.

It takes at least 30 minutes to cool a body that has overheated!



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EVALUATING THE RISKS OF HEAT ILLNESSES

Individual Risk Factors

- New to climate
- Medications that increase your reaction to sun exposure
- Medical conditions
- Dehydration caused by illness or activity
- Malnutrition
 - e.g. excessive caffeine consumption
- Weather
 - excessive heat, high humidity, little air movement

Job Risk Factors

- Environment
 - Direct sun, high heat with no air flow, etc.
- Personal Protective Equipment that prevents or slows evaporation of sweat.
- Work hours
- Heavy work load
 - excessive lifting, climbing, or digging with heavy objects



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CONTROLLING HEAT RELATED ILLNESSES

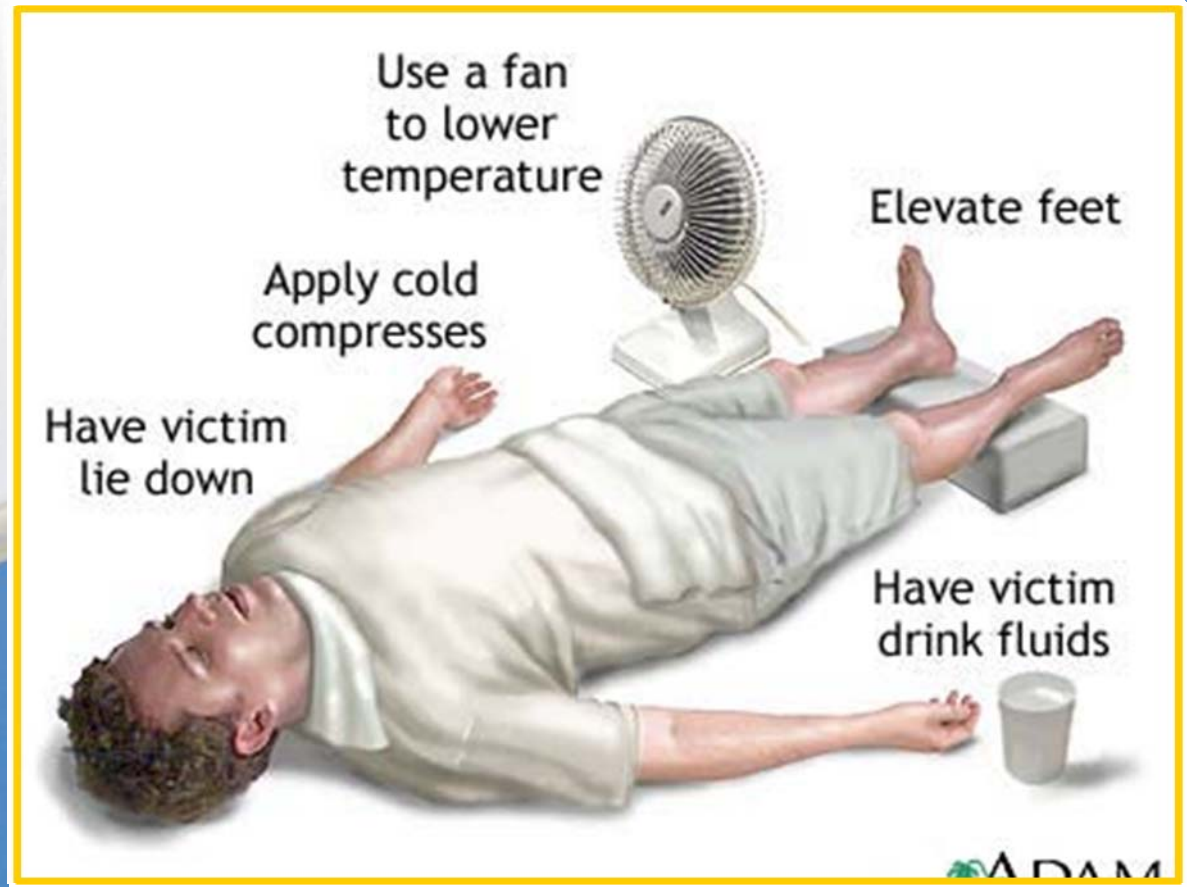
Supervisor's Responsibilities

- Make sure workers are acclimated to the environment.
 - Gradually expose worker to a longer work period in the hot environment.
- Make sure workers are replacing fluids at regular intervals.
 - e.g. one cup every 20 minutes
- Provide recovery areas for workers to cool off during breaks.
- When possible, schedule job for a cooler time of day.
- Monitor workers who are at risk of heat related illnesses.

Employee Responsibilities

- Drink small amounts of water frequently.
- Wear light-colored, loose-fitting, breathable clothing . e.g. cotton
- Take short breaks in cool shade
- Eat smaller meals before work activity
- Avoid caffeine and alcohol or large amounts of sugar.
- Ask your doctor if your medications and heat don't mix.
- Know that protective equipment can increase heat stress.

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For questions or additional information visit our website at <http://riskmanagement.ccsd.net> or call us at 799-2967.