Prevention of Heat Illness

Guidelines for working in the heat

This is to be used as a guideline to help your company comply with Cal OSHA regulations. As an employer you must include your companies specific reporting procedures, medical response and emergency procedures. This material was generated from reliable sources and does not provide any legal protection.

What Is Acclimatization

- "Acclimatization" means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.

What is Heat Illness

- "Heat Illness" means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.

What is Shade

- “Shade” means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.

Water Provisions

- Employees shall have access to potable drinking water
- Water shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift.
- Employers may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour.

Access to Shade

- Employees suffering from heat illness or believing a preventative recovery period is needed, shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade shall be permitted at all times.

What are some of the hazards?

- Sun exposure
- Heat related illnesses
- Fatigue and Exhaustion
- Dehydration

The Rising Temperatures

- As temperatures rise, so does the stress on your body.
- Two critical actions can help you battle the heat.
  - Acclimation to the heat.
  - Consumption of water.

Your Body is a Good Regulator of Heat

- Your body reacts to heat by circulating blood and raising your skin's temperature. The excess heat is then released through the skin by sweating.
- Physical activity can limit the amount of blood that flows to the skin to release heat.
- Sweating can also maintain a stable body temperature if the humidity level is low enough to permit evaporation and if the fluids and salts you lose are adequately replaced.
- When your body cannot release heat, it stores it. This raises your core temperature and heart rate putting your health at risk.

What can affect your bodies regulator

- Many factors can cause unbalances in your body's ability to handle heat.
  - Age
  - Weight
  - Fitness
  - Medical condition
  - Diet

Heat Stress-Early Sign of Trouble

- If you are:
  - Overweight
  - Physically unfit
  - Suffer from heart conditions
  - Drink too much alcohol
  - Are not used summer temperatures
- You may be at greater risk of heat stress and should seek and follow medical advice.

Summer Heat

- Heat stress is a serious hazard in the workplace as well as at home.
- Excessive heat can place an abnormal stress on your body.
- When your body temperature rises even a few degrees above normal (which is about 98.6 degrees Fahrenheit) you can experience
  - muscle cramps
  - become weak
  - disoriented
  - dangerously ill

Heat Stress

- Operations involving high temperatures, radiant heat sources, high humidity, and/or strenuous physical activities have a high potential for inducing heat stress in employees.
- Outdoor operations conducted in hot weather, such as construction, and hazardous waste site activities, especially those that require workers to wear semipermeable or impermeable protective clothing, are also likely to cause heat stress among exposed workers.

Heat Stress-Early Sign of Trouble

- Heat Stress will reduce your work capacity and efficiency.
- Signs of heat stress include:
  - Tiredness
  - Irritability
  - Inattention
  - Muscular cramps.

Heat Rash- Another Early Sign of Trouble

- Also known as prickly heat, occurs when people are constantly exposed to hot and humid air, causing a rash that can substantially reduce the ability to sweat.
- Heat rash is not just a nuisance because of discomfort, but by reducing the ability to sweat, the ability to tolerate heat is reduced.

Heat Fatigue

- A factor that predisposes an individual to heat fatigue is lack of acclimatization. The use of a program of acclimatization and training for work in hot environments is advisable. The signs and symptoms of heat fatigue include impaired performance of skilled sensor motor, mental, or vigilance jobs. There is no treatment for heat fatigue except to remove the heat stress before a more serious heat-related condition develops.

Heat Cramps- Final Warning

- May occur after prolonged exposure to heat.
- They are the painful intermittent spasms of the abdomen and other voluntary muscles.
- Heat Cramps usually occur after heavy sweating and may begin towards the end of the workday.

Heat Cramps

- Usually caused by performing hard physical labor in a hot environment. These cramps have been attributed to an electrolyte imbalance caused by sweating. Cramps can be caused by both too much and too little salt. Cramps appear to be caused by the lack of water replenishment. Because sweat is a hypotonic solution (±0.3% NaCl), excess salt can build up in the body if the water lost through sweating is not replaced. Thirst cannot be relied on as a guide to the need for water; instead, water must be taken every 15 to 20 minutes in hot environments.
- Under extreme conditions, such as working for 6 to 8 hours in heavy protective gear, a loss of sodium may occur. Recent studies have shown that drinking commercially available carbohydrate-electrolyte replacement liquids is effective in minimizing physiological disturbances during recovery.

Heat Cramps- First Aid

- First aid for heat cramps will vary. The best care is:
  - Rest
  - Move to a cool environment
  - Drink plenty of water- No pop, sparkling water, or Alcohol.
  - Electrolyte fluids such as Gatorade or Sqwincher may also be used

Heat Exhaustion- Time Running Out

- May result from physical exertion in hot environments.
- Symptoms may include:
  - Profuse sweating
  - Weakness
  - Paleness of the skin
  - Rapid pulse
  - Dizziness
  - Nausea
  - Headache
  - Vomiting
  - Unconsciousness
- The skin is cool and clammy with sweat. Body temperature may be normal or subnormal.

Heat Exhaustion

- The signs and symptoms of heat exhaustion are headache, nausea, vertigo, weakness, thirst, and giddiness. Fortunately, this condition responds readily to prompt treatment. Heat exhaustion should not be dismissed lightly for several reasons. One is that the fainting associated with heat exhaustion can be dangerous because the victim may be operating machinery or controlling an operation that should not be left unattended; or the victim may be injured when he or she faints. Also, the signs and symptoms seen in heat exhaustion are similar to those of heat stroke, a medical emergency.
- Workers suffering from heat exhaustion should be removed from the hot environment and given fluid replacement. They should also be encouraged to get adequate rest.

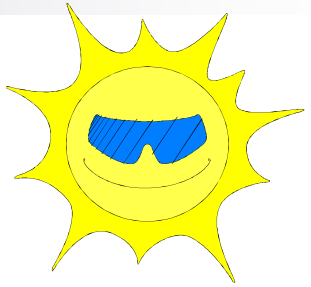
Heat Exhaustion- First Aid

- Rest in the shade or cool place.
- Drink plenty of water (preferred) or electrolyte fluids.
- Loosen clothing to allow for your body to cool.
- Use cool wet rags to aid cooling.

Heat Stroke- Your Out of Time 9 1 1

- This is a serious medical condition that urgently requires medical attention.
- Sweating is diminished or absent, which makes the skin hot and dry.
- Body temperature is very high (106 degrees F. and rising).

Heat Stroke- Signs and Symptoms



- Mental confusion
- Delirium
- Chills
- Dizziness
- Loss of consciousness
- Convulsions or coma
- A body temperature of 105 degrees F or higher
- Hot, dry skin that may be red, mottled or bluish
- A strong fast pulse

Heat Stroke- **Rapid Response 9 1 1**

DO NOT DELAY

- If you suspect someone is suffering from heat stroke, call an ambulance immediately.
- Their condition will rapidly deteriorate.
- You must make a provide care immediately.

Heat Stroke- First Aid

- **This is a Medical Emergency!!**
- Brain damage and death are possible.
- Until medical help arrives, move the victim from the heat and into a cool place.

Call 9-1-1

Heat Stroke- First Aid

- You must use extreme caution when soaking clothing or applying water to a victim. Shock may occur if done to quickly or with too cool of water
- Soak his or her clothes with water and use a fan or ice packs.
- Douse the body continuously with a cool liquid and summon medical aid immediately.

Dehydration

- One of the main causes of dehydration is overexposure to the Sun.
- Dehydration is one of the most common heat diseases. At times dehydration might be dismissed as a minor "irritation", but it is something that warrants timely treatment.
- Dehydration can be defined as "Loss of water content and essential body salts (electrolytes) needed for normal body functioning.”

Dehydration

- There are basically 3 types of dehydration. Mild dehydration, which is said to set in when there is a fluid loss of 5% from the body. At this point in time, dehydration is not very dangerous and can be easily cured with re-hydration.
- Moderate dehydration is said to set in when there is up to a 10% loss of body fluid. This type is of great concern and immediate steps should be taken for re-hydration.
- When about 15% of a persons body fluid is lost a person is considered severely dehydrated. This should be treated as a medical emergency and might even require hospitalization to bring about a normal electrolyte balance.

Symptoms of Dehydration

To enable quick and easy diagnosis, proper knowledge of some of the more common symptoms of dehydration is necessary.

A person suffering from dehydration will display the following symptoms:

- 1. A dry mouth with sticky mucus membrane in the mouth.
- 2. Decreased urine output.
- 3. Sunken eyes
- 4. Wrinkled skin which may lack its normal elasticity and sag back into position slowly when pinched into a fold.

Symptoms of Dehydration

- 5. Fatigue
- 6. Dizziness, confusion, and coma
- 7. Low blood pressure
- 8. Severe thirst
- 9. Increased heart-rate and breathing

If you experience any of the above symptoms, or observe them in a friend then you need to get immediate medical attention

Prevent Dehydration

Dehydration can strike anyone at any time. However by taking some basic precautionary measures, the harmful effects of dehydration can be avoided.

- Always drink plenty of fluids especially when going out to work in the sun.
- Frequent consumption of water up to 4 cups per hour under extreme conditions of work in heat is required.
- Keep a careful check on intake and outflow of fluids. The human body should never lose more fluids than it is taking in.

Our Companies Reporting and Emergency Procedures are

- **Heat Illness – Emergency Response Procedures**
- If an employee suffers a heat related illness that requires medical treatment beyond first aid, the following steps will be taken:
- Call 911 immediately
- Move the victim to a cool location and begin cooling measures, including;
  - Loosening clothing.
  - Pouring water over the head and body if possible.
  - Providing a “sports” type drink or “pedialyte” type drink for heat stressed worker to drink slowly, but steadily.
  - Talk calmly to heat stressed person until medical service arrives.
- Position personnel at the site entrance to guide emergency personnel to the location of the injured workers.
- Notify the designated company medical facility in that area so they may follow-up. Report the employee’s name, type of symptoms and company name.
- Certified first aid/CPR personnel will administer basic life-saving measures to the extent possible until professional help arrives or until the transported employee is at the hospital/medical center if we transport employee ourselves do to the location of the jobsite.
- Call the office immediately to report this exposure.

Let’s Be Safe When Working In the Sun

- Wear light colored, natural fiber clothing to help your body to repel heat absorption and cool easier.
- Wear proper sunscreens when out in the sun.
- Consume lots of water to stay hydrated.
- Cool down at break and lunch in the shade.
- Pace yourself during strenuous activities.

Any Questions