



**SAN JOSÉ STATE
UNIVERSITY**

Heat Illness Prevention Training

Employee Training Module

High temperatures and humidity stress the body's ability to cool itself, and heat illness becomes a special concern during hot weather. There are three major forms of heat illnesses: heat cramps, heat exhaustion, and heat stroke, with heat stroke being a life threatening condition. Training must be provided to all employees and supervisors of employees that work outdoors in the heat. This training will include information on identifying, evaluating and controlling exposures, symptoms, control measures, the importance of drinking water, risk factors, emergency procedures, and employee rights.

Environmental Factors

Employees should be aware of working conditions where the possibility of heat illness could occur. Some of these conditions include; working in direct sunlight, exposure to high temperatures and high humidity. Dress appropriately for outdoor work, where a hat that protects your face and neck from sunburn. Wear light colors and loose clothing to allow for the body to remain cool. Depending on the temperature, limit exposures to the heat and try to do the heaviest jobs during the cooler hours of the morning or late afternoon when the sun is down and alternate your tasks when possible. When high heat patterns can be predicted, consider starting and ending your shifts earlier. During the hot summer months, be prepared by checking the local weather to anticipate for possible heat waves.

Personal Risk Factors

The body needs time to adapt to increased heat and humidity, anywhere between four and fourteen days should be sufficient depending on the amount of heat and physical exertion. This process is called "acclimatization", taking the time to gradually increase to a full work shift and pace. On very hot days, start early, increase the number of water and rest breaks. Those employees that are unaccustomed to working in heat need to take extra care. Again, protect yourself by wearing loose clothing that allows body heat to escape.

Maintaining bodyweight is important for workers outdoors in the heat, being overweight makes you use more energy. Also, as we get older, our bodies may have less water and lower sweat efficiency that makes it harder for us maintain body temperature.

Shade

The purpose of shade is to remove one source of heat: direct sunlight, preventing additional heat burden to the body out of direct sunlight. 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. If there are no protected areas from the sun, such as trees and buildings, consider sources of shade, such as umbrellas, canopies, or other temporary structures.

Water

Drink water before and during work in the heat and avoid alcohol and caffeine. Employers are required to provide access to potable drinking water in sufficient quantity at the beginning of the work shift that provides for one quart per employee per hour per shift.

(1 quart X 8 hrs. = 2 Gallons for every employee/day. 1 quart = 2 pints)

NOTE: It is important to keep drinking water accessible and remind workers to drink it frequently.

Heat Illness types and symptoms

Heat Cramps

Heat cramps are muscle spasms which usually affect the arms, legs, or stomach. Frequently they don't occur until sometime later after work, at night, or when relaxing. Heat cramps are caused by heavy sweating, especially when water is replaced by drinking, but not salt or potassium. Although heat cramps can be quite painful, they usually don't result in permanent damage.

What to do about heat cramps: To prevent them, drink electrolyte solutions such as Gatorade during the day and try eating more fruits like bananas.

Heat Exhaustion

Heat exhaustion is more serious than heat cramps. It occurs when the body's internal air-conditioning system is overworked, but hasn't completely shut down. In heat

exhaustion, the surface blood vessels and capillaries, which originally enlarged to cool the blood, collapse from loss of body fluids and necessary minerals. This happens when you don't drink enough fluids to replace what you're sweating away.

Symptoms of heat exhaustion include: headache, heavy sweating, intense thirst, dizziness, fatigue, loss of coordination, nausea, impaired judgment, loss of appetite, hyperventilation, tingling in hands or feet, anxiety, cool moist skin, weak and rapid pulse (120-200), and low to normal blood pressure.

What to do about heat exhaustion: Somebody suffering these symptoms should be moved to a cool location such as a shaded area or air-conditioned building. Have them lie down with their feet slightly elevated. Loosen their clothing, apply cool, wet cloths or fan them. Have them drink water or electrolyte drinks. Try to cool them down, and have them checked by medical personnel. Victims of heat exhaustion should avoid strenuous activity for at least a day, and they should continue to drink water to replace lost body fluids.

Heat Stroke (this is the most serious type of heat illness)

Heat stroke is a life threatening illness with a high death rate. It occurs when the body has depleted its supply of water and salt, and the victim's body temperature rises to deadly levels. A heat stroke victim may first suffer heat cramps and/or the heat exhaustion before progressing into the heat stroke stage, but this is not always the case. It should be noted that, on the job, heat stroke is sometimes mistaken for heart attack. It is therefore very important to be able to recognize the signs and symptoms of heat stroke - and to check for them anytime an employee collapses while working in a hot environment.

Symptoms of heat stroke include a high body temperature (103 degrees F); a distinct absence of sweating (usually); hot red or flushed dry skin; rapid pulse; difficulty breathing; constricted pupils; any/all the signs or symptoms of heat exhaustion such as dizziness, headache, nausea, vomiting, or confusion, but more severe; bizarre behavior; and high blood pressure. Advance symptoms may be seizure or convulsions, collapse, loss of consciousness, and a body temperature of over 108 degrees F.

What to do about heat stroke: Call 911 SJSU Police and get an ambulance on the way as soon as possible. It is vital to lower a heat stroke victim's body temperature. Seconds count. Pour water on them, fan them, or apply cold packs.

Emergency Procedures (for Supervisors and Employees)

If an employee complains or has visible signs of heat stress, stroke or exhaustion.

- Remove them to the shade
- Have them take a 5-minute break.
- On campus, seek additional medical assistance from the Student Health Center
- Call 911 if necessary!

NOTE: It is important to immediately report any of the above signs and symptoms of heat illness. Inform your supervisor immediately and contact 911 for the campus police in the event of serious heat illness exposure. Have a co-worker stay with the injured employee and be ready to give emergency responders directions to worksite where the injured person is located. See Human resources Accident Reporting guidelines for medical assistance and injury reporting procedures. www.sjsu.edu/hr/safetyrisk

Take these precautions to prevent heat-related illnesses:

- Condition yourself for working in hot environments. Start slowly then build up to more physical work. Allow your body to adjust over a few days.
- Drink lots of liquids. Don't wait until you're thirsty! By then, there's a good chance that you're already on your way to being dehydrated. Electrolyte drinks are good for replacing both water and minerals lost through sweating. Never drink alcohol, and avoid caffeinated beverages like coffee and pop.
- Take frequent breaks, especially if you notice you're getting a headache or you start feeling overheated. Cool off for a few minutes before going back to work.
- Wear lightweight, light colored clothing when working out in the sun.
- Take advantage of fans and air-conditioners.
- With a little caution and a lot of common sense, you can avoid heat related illnesses.

For more information:

SJSU Safety and Risk Services

408-924-2150

<http://www.sjsu.edu/hr/safetyrisk>