

Heat Illness Prevention

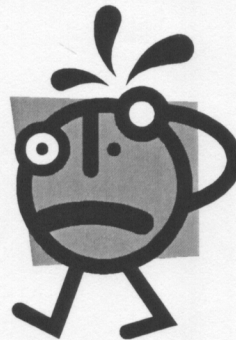
A Guide to Staying Cool & Safe!

*San Joaquin County
Mosquito & Vector Control District
July 12, 2007*

Normally...

Your body cools itself by sweating. However, your body is at risk of being unable to effectively cool itself. This can occur when:

- You're doing physical labor.
- You're wearing gear.
- You're in the sun too long.



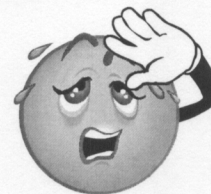
Environmental Risk Factors

- External sources that heat the body
 - ✓ Air temperature
 - ✓ Radiant heat (directly from the sun and other sources)
 - ✓ Conductive heat (indirect heat from the ground and other sources)
- Factors that limit how well your body can cool itself
 - ✓ Relative humidity
 - ✓ Limited air movement
 - ✓ Protective clothing and equipment that does not "breathe"
- Metabolic heat
 - ✓ Workload intensity and duration



Personal Risk Factors

- Age - Older people are more susceptible
- General health - People in good health have less risk
- Medications - Some medications can affect water retention
- Fluids - Not getting enough fluids or not getting the right fluids increase the risk
 - ✓ REMEMBER DRINK WATER
 - * No carbonated drinks
 - * No caffeinated drinks
 - * No alcoholic drinks



Water

Drinking Water in Hot Weather is Vital!

- Pre-hydrate before starting work
- Drink plenty of water when working in the heat, as much as a quart an hour
- Even if you're not thirsty drink, small but frequent amounts of water when working outside



Acclimatization

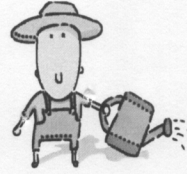
Gradually getting used to the heat

- It takes about 4 to 14 days working in heat at least 2 hours/day
- Highest risk for heat illness:
 - ✓ At the start of the summer season
 - ✓ New employee not used to heat
 - ✓ Coming back from illness or vacation



Always

- Wear loose, lightweight, light-colored clothing, a wide-brimmed hat, and sun block
- Take brief breaks in the shade if available
- Get out of heat immediately if you start to feel ill, get a headache, or feel overheated
- Immediately report all unsafe conditions and/or concerns to your supervisor or the District's main office



Heat Stroke Signs & Symptoms

**THIS IS LIFE THREATENING
IF YOU SUSPECT HEAT STROKE,
CALL 911 IMMEDIATELY**

- Elevated body temperature
 - ✓ 104° F or more
- Changes in mental condition
 - ✓ Irritability, confusion, delirium, or unconsciousness
- Skin
 - ✓ Usually hot, red, dry - **but not always**



Heat Stroke

Signs & Symptoms May Include:

- Rapid, strong pulse
- Rapid and shallow breathing
- Throbbing headache
- Dizziness/fainting (may be the first sign in older adults)
- Nausea
- Confusion
- Unconsciousness



Heat Stroke – What do you do?

THIS IS AN EMERGENCY!

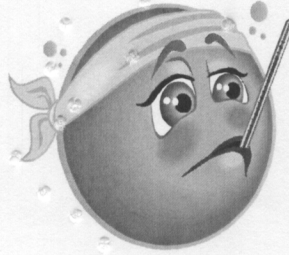
- **CALL 911 IMMEDIATELY**
- Notify supervisor or District's main office
- Move the person out of sun into cooler area, keep him/her lying down
- Cool the person with whatever is available. Remove enough clothing to cool the person. Fan vigorously
- Watch for breathing problems, make sure airway is clear, especially if the person is vomiting
- Do not give the person water unless directed to by professional medical personnel
- If muscles begin to twitch uncontrollably, protect person from injuring himself or herself. Do not place any object in his or her mouth



Heat Exhaustion

Signs & Symptoms Often Come on Suddenly:

- Feeling faint
- Rapid, weak heartbeat
- Nausea
- Heavy sweating
- Cool, moist skin
- Ashen appearance



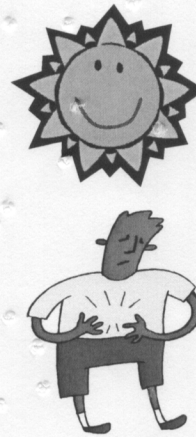
Heat Exhaustion What do you do?

- Move the person out of sun into cooler area
- Lay the person down
- Give the person cool water - no iced drinks, no alcohol or caffeine - encourage the person to drink slowly
- Bring down the person's body temperature - cool, wet clothes to the skin - fan him or her
- **Call 911** if the person refuses water, is vomiting, faints, has a seizure, or loses consciousness

**HEAT EXHAUSTION CAN QUICKLY
BECOME
HEAT STROKE - MONITOR CAREFULLY**

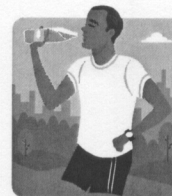
Heat Cramps

- Painful, involuntary muscle spasms - usually during strenuous activity in hot environments
- Most often affects calves, arms, abdomen, and back
- Can be caused by inadequate fluid intake



Heat Cramps What do you do?

- Rest briefly and cool down
- Drink water
- Practice gentle, range-of-motion stretching and gentle massage of the affected muscle group
- Call a doctor if cramps continue



***Take care of yourself
Take care of each other***

- Take breaks in the shade and drink water
- Get out of the sun if you start to feel ill, get a headache, or feel overheated – tell your supervisor
- Know how to get emergency help
 - ✓ How to summon help – cell phone, radio
 - ✓ Be able to describe symptoms and follow emergency directions
 - ✓ Be able to give clear directions to your location
- Immediately report all unsafe conditions and/or concerns to your supervisor or the District's main office

San Joaquin County Mosquito and Vector Control District

Heat Illness Prevention Training

1. Environmental and personal risk factors for heat illness

Working conditions that affect the possibility that heat illness could occur:

- Air temperature/relative humidity
- Radiant heat (sun and other sources)
- Conductive heat sources
- Air movement
- Workload severity and duration
- Protective clothing/PPE

2. Personal risk factors

Personal risk factors that may put employees at a higher risk of developing heat illness:

- Age
- Weight
- Physical fitness
- Metabolism
- Acclimatization
 - a. "Acclimatization" means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it
- Prescription drugs
- Water consumption
- Alcohol consumption
- Caffeine consumption
- Other conditions that affect the body's water retention or physiological responses to heat

3. Employees with any personal risk factors should be especially cautious in the heat:

- drink plenty of water
- acclimate
- report any symptoms of heat illness to your immediate supervisor
- wear loose, lightweight, light-colored clothing; wear a hat; wear sun block
- take breaks in the shade
- get out of the heat immediately if you start to feel ill, get a headache, or feel overheated
- immediately report all unsafe conditions and/or concerns to your immediate supervisor or manager

4. The District's procedures for complying with the requirements of this standard include the annual training of Heat Illness Prevention requirements to all employees; periodic contacts between supervisors and field personnel to insure compliance with the District's policy re: heat illness prevention; and other communications between the District and its staff as required.

5. Employees should frequently consume small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties.

Employees are encouraged to drink water frequently, and to:

- Pre-hydrate before starting to work
- Drink plenty of water when working in the heat
- Even if there is no feeling of thirst, employees should drink small but frequent amounts of water when working outside

The District provides each employee with a two (2) gallon potable water container and access to adequate supplies of potable water at the District's facilities. All employees are required to keep the potable water containers filled with potable water and available at their assigned work area to accommodate the consumption of water for heat illness prevention.

6. Employees should acclimatize prior to working in a hot environment. It can take between 4-14 days working in heat at least 2 hours per day. The highest risk for heat illness is:

- At the start of the summer season
- When a new employee is not used to the heat
- Returning to work from illness or vacation

Employees can become acclimatized by limiting exposure to the heat and gradually build up exposure. During acclimatization, employees will be monitored by their supervisor or management for signs and symptoms of heat illness. Employees must report any signs of heat illness to their supervisor or management immediately.

7. There are different types of heat illness. "Heat illness" means a serious medical condition resulting from the body's inability to cope with a particular heat load. Additionally, there are also common signs and symptoms of heat illness.

The five (5) main classifications of heat illness are:

1. Heat rash

- Can occur in hot and humid environments where sweat is not removed from the skin; usually disappears when the worker returns to a cool environment

2. Fainting

- Can be a problem for workers who are not acclimated to heat
- Lying down may help

3. Heat cramps

- Happens when workers perform hard physical labor in a hot environment; most common in the arms and legs; cramping can occur after work has stopped; workers need to drink water every 15-20 minutes; consuming an electrolyte replacement drink may help

4. Heat exhaustion

- The whole body, especially the circulatory system, becomes extremely stressed. Possible symptoms include: clammy skin; heavy sweating; fatigue, shortness of breath; headache, dizziness, or fainting; nausea and vomiting; and rapid heartbeat and breathing.

Heat exhaustion treatment includes:

- Get professional medical help; if uncertain call 9-1-1
- Do not leave the person alone
- While waiting, get person out of the sun; remove to cool place to rest; remove enough clothing to cool the person without chilling him/her; fan vigorously; give water as tolerated (do not administer fluids to an unconscious person)

5. Heat stroke

- Possible symptoms include: dizziness and confusion; red, hot, dry skin (very little sweating); nausea and vomiting; rapid pulse; very high body temperature; and convulsions and fainting.

Heat stroke treatment:

- Call 9-1-1 immediately
- Person could die unless treated properly. While awaiting medical help: get person out of sun; get person into cool area; remove enough clothing to cool the person without chilling him/her; fan vigorously; apply cool water to clothing or skin

8. Employees suffering from heat illness or believing a preventative recovery period is needed should seek an area of shade that is either open to the air or provided with ventilation or cooling. Air conditioning systems in District vehicles can be utilized, as well as driving to an area with trees or suitable cover.

9. It is important that employees immediately report to their supervisor or management any symptoms or signs of heat illness in themselves or in their coworkers. Contact the District by way of the two-way radio system (employee to supervisor; employee to Stockton base), or by telephone (209-982-4675, or toll free at 1-800-300-4675). Report your location and the heat illness symptoms you are experiencing. Do not continue to drive a vehicle or operate equipment or machinery until your condition allows you to do safely. If unsure, wait for your supervisor or coworker to assist you.

10. If an employee's heat illness symptoms are such that emergency medical services are necessary, the District will assist with transfer of the ill employee to the nearest emergency medical service provider by way of ambulance or District vehicle as appropriate. Emergency responders will be provided with the address or property site location based on information provided by the ill employee or his supervisor. Emergency medical providers are available at hospitals located in Lodi (Lodi Memorial Hospital), Stockton (Dameron Hospital, St. Josephs Hospital, and San Joaquin General Hospital), Manteca (Doctors Hospital), and Tracy (Sutter Tracy Community Hospital). District staff will notify the local hospital of the pending arrival of the ill employee, and provide as much background information re: the illness as available. Additionally, the District will notify a spouse (or contact person designated by the ill employee) of the affected employee's transfer to a hospital for medical care. A District representative will go to the hospital and assist the ill employee and hospital staff re: medical insurance information as needed.

11. Prior to assignment to supervision of employees working in the heat, employees will be trained in the following topics:
 - Environmental and personal risk factors for heat illness
 - The District's procedures for complying with the requirements of the Heat Illness Prevention standard
 - The importance of frequent consumption of small quantities of water, including the District's provision of two (2) gallons of water per day per employee
 - The importance of acclimatization
 - The different types of heat illness and the common signs and symptoms of heat illness
 - The reporting of illness by the employee to the District
 - The District's procedures for responding to symptoms of heat illness, providing emergency medical services, and transporting ill employees

June 4, 2007

Subchapter 7. General Industry Safety Orders Group 2. Safe Practices and Personal Protection Article 10. Personal Safety Devices and Safeguards

§3395. Heat Illness Prevention

(a) Scope and Application. This section applies to the control of risk of occurrence of heat illness. This is not intended to exclude the application of other sections of Title 8, including, but not necessarily limited to, sections 1230(a), 1512, 1524, 3203, 3363, 3400, 3439, 3457, 6251, 6512, 6969, 6975, 8420 and 8602(e). This section applies to all outdoor places of employment.

Note No. 1: The measures required here may be integrated into the employer's Injury and Illness Program required by section 3203.

Note No. 2: This standard is enforceable by the Division of Occupational Safety and Health pursuant to Labor Code sections 6308 and 6317 and any other statutes conferring enforcement powers upon the Division. It is a violation of Labor Code sections 6310, 6311, and 6312 to discharge or discriminate in any other manner against employees for exercising their rights under this or any other provision offering occupational safety and health protection to employees.

(b) Definitions.

"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.

"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.

"Environmental risk factors for heat illness" means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.

"Personal risk factors for heat illness" means factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention or other physiological responses to heat.

"Preventative recovery period" means a period of time to recover from the heat in order to prevent heat illness.

"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.

(c) Provision of water. Employees shall have access to potable drinking water meeting the requirements of Sections 1524, 3363, and 3457, as applicable. Where it is not plumbed or otherwise continuously supplied, it 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. The frequent drinking of water, as described in (e), shall be encouraged.

(d) 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. Except for employers in the agricultural industry, cooling measures other than shade (e.g., use of misting machines) may be provided in lieu of shade if the employer can demonstrate that these measures are at least as effective as shade in allowing employees to cool.

(e) Training.

(1) Employee training. Training in the following topics shall be provided to all supervisory and non-supervisory employees.

(A) The environmental and personal risk factors for heat illness;

(B) The employer's procedures for complying with the requirements of this standard;

(C) The importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties;

(D) The importance of acclimatization;

(E) The different types of heat illness and the common signs and symptoms of heat illness;

(F) The importance to employees of immediately reporting to the employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers;

(G) The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary;

(H) The employer's procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider;

(I) The employer's procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

(2) Supervisor training. Prior to assignment to supervision of employees working in the heat, training on the following topics shall be provided:

(A) The information required to be provided by section (e)(1) above.

(B) The procedures the supervisor is to follow to implement the applicable provisions in this section.

(C) The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

(3) The employer's procedures required by subsections (e)(1)(B), (G), (H), and (I) shall be in writing and shall be made available to employees and to representatives of the Division upon request.

Note: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 8-22-2005 as an emergency; operative 8-22-2005 (Register 2005, No. 34). A Certificate of Compliance must be transmitted to OAL by 12-20-2005 or emergency language will be repealed by operation of law on the following day.

2. New section refiled 12-20-2005 as an emergency; operative 12-20-2005 (Register 2005, No. 51). A Certificate of Compliance must be transmitted to OAL by 4-19-2006 or emergency language will be repealed by operation of law on the following day.

3. New section refiled 4-19-2006 as an emergency; operative 4-19-2006 (Register 2006, No. 16). A Certificate of Compliance must be transmitted to OAL by 8-17-2006 or emergency language will be repealed by operation of law on the following day.

4. Certificate of Compliance as to 4-19-2006 order, including amendment of section heading and section, transmitted to OAL 6-16-2006 and filed 7-27-2006 (Register 2006, No. 30).

Heat Illness Prevention

Did you know that each year more people die from heat related illness than from hurricanes, lightning, tornadoes, floods, and earthquakes combined? Don't let the heat get to you!

Your body cools itself by sweating - normally that works just fine unless the heat in your body builds up so much that your body can't cool itself. This can occur when:

- ✦ You're doing physical labor.
- ✦ You're wearing gear.
- ✦ You're in the sun too long.

KNOW THE RISKS

Environmental risk factors are the working conditions that create the possibility that heat illness may occur.

Some things that can heat your body:

- ✦ Air temperature
- ✦ Radiant heat
- ✦ Air movement
- ✦ Conductive heat sources

Some things that can limit how well your body can sweat and cool itself:

- ✦ High relative humidity
- ✦ Limited air movement
- ✦ Protective clothing and equipment that does not "breathe"

Metabolic heat adds to your heat burden depending on:

- ✦ How hard you're working in the heat
- ✦ If you are using personal protective equipment

Personal risk factors are your characteristics that may increase your risk for heat illness:

- ✦ Younger people are less susceptible
- ✦ People in good health have less risk
- ✦ Alcohol, caffeine, and soft drinks increase risk of dehydration
- ✦ Water consumption lessens the risk
- ✦ Certain prescriptions can affect the body's water retention or have other effects

It is important to talk to your health care professional if you have any concerns about working in the heat.

Please be advised: Nothing in the written material shall be considered the legal advice of counsel. Any such questions should be directed to your own legal counsel. The purpose of this material is to help educate employers, employees and others on how to control risk. The principals and employees of BRS assume no liability for any use of this information. This information is considered reliable, but we cannot assume its effectiveness or that all potential hazards are addressed. This information does not ensure compliance with federal, state or local regulations. Your use of this information is not a guarantee that losses will be prevented or reduced, nor is this information a substitute for your responsibility to administer your safety program.

Heat Illness Prevention

WHAT CAN YOU DO?

Acclimatization

People need time for their bodies to adjust to working in heat – to acclimate. Usually, the first few days of hot weather are the worst, and then the body begins to adjust. You should be especially careful for the first 4 to 10 days – limiting work in the heat to two hours at first and increasing the time gradually or working during cooler hours. This is really important at the beginning of the hot season, if you've been away from work for a while (out sick, on vacation, etc.), or if you've just moved from a cooler area. Be especially careful during heat waves, and be sure to report any sign of illness to your supervisor.

Water

It is important that you drink water and not coffee, tea, or soft drinks. If you're working in the heat, you'll need 3 to 4 glasses of water per hour to replace water lost to sweat. Be sure to start at the beginning of your shift, and don't wait until you're thirsty. By this point, you may already be dehydrated.

Preventative Recovery Period

Get out of the sun if you think you need to. Take rest breaks in cooler, shaded areas for at least five minutes. This "preventative recovery period" allows you to cool off and to drink some water to hydrate yourself.

MEDICAL ATTENTION

Heat illness can start with a headache, muscle cramps, and unusual fatigue. If you feel any of these symptoms, get out of the heat and tell your supervisor.

Remember, heat illness can come on suddenly and quickly. You need to watch out for your coworkers when it comes to heat illness because they may not be able to help themselves. Signs of serious heat illness include:

- ✦ Unusual behavior
- ✦ Nausea/vomiting
- ✦ Weakness
- ✦ Rapid pulse
- ✦ Excessive sweating **or** hot dry skin
- ✦ Seizures
- ✦ Fainting or loss of consciousness

Any of these symptoms require immediate attention, and if you notice a coworker with these symptoms get him or her out of the sun immediately and notify your supervisor. If you suspect heat illness, get emergency medical assistance immediately. **Call 911.**

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Heat Illness Prevention for Supervisors

Taken from Cal/OSHA Heat Advisory

When employees work in hot conditions, employers must take special precautions to prevent heat illness. Heat illness can progress to heat stroke and be fatal, especially when emergency treatment is delayed. An effective approach to heat illness is vital to protecting the lives of California workers. California law requires employers to identify and evaluate workplace hazards and take the steps necessary to address them. The risk of heat illness can be significantly reduced by consistently following just a few simple steps. Employers of outdoor workers at temporary work locations must be particularly alert and also plan for providing first aid and emergency medical services should they become necessary. All workers should be accounted for during and at the end of the work shift. Heat illness results from a combination of factors including environmental temperature and humidity, direct radiant heat from the sun or other sources, air speed, and workload. Personal factors, such as age, weight, level of fitness, medical condition, use of medications and alcohol, and acclimatization affect how well the body deals with excess heat.

Recognize the Hazard

There is no absolute cut-off below which work in heat is not a risk. With heavy work at high relative humidity or if workers are wearing protective clothing, even work at 70°F can present a risk. In the relative humidity levels often found in hot areas of California (20 to 40 percent) employers need to take some actions to effectively reduce heat illness risk when temperatures approach 80 °F. At temperatures above 90°F, especially with heavy work, heat risk reduction needs to be a major concern.

Water

There must be an adequate supply of clean, cool, potable water. Employees who are working in the heat need to drink 3-4 glasses of water per hour, including at the start of the shift, in order to replace the water lost to sweat. For an eight-hour day this means employers must provide two or more gallons per person. Thirst is an unreliable indicator of dehydration. Employees often need ongoing encouragement to consume adequate fluids, especially when the workload or process does not encourage breaks.

Shade

The direct heat of the sun can add as much as 15 degrees to the heat index. If possible, work should be performed in the shade. If not, employers where possible, should provide a shaded area for breaks and when employees need relief from the sun. Wide brimmed hats can also decrease the impact of direct heat.

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BRS

Bureau Risk Services

Heat Illness Prevention for Supervisors

Acclimatization

People need time for their bodies to adjust to working in heat. This “acclimatization” is particularly important for employees returning to work after (1) a prolonged absence, (2) recent illness, or (3) recently moving from a cool to a hot climate. For heavy work under very hot conditions, a period of 4 to 10 days of progressively increasing work time starting with about 2 hours work per day under the working conditions is recommended. For less severe conditions at least the first 2 or 3 days of work in the heat should be limited to 2 to 4 hours. Monitor employees closely for signs and symptoms of heat illness, particularly when they have not been working in heat for the last few days, and when a heat wave occurs.

Rest Breaks

Rest breaks are important to reduce internal heat load and provide time for cooling. Heat illness occurs due to a combination of environmental and internal heat that cannot be adequately dissipated. Breaks should be taken in cooler, shaded areas. Rest breaks also provide an opportunity to drink water.

Prompt Medical Attention

Recognizing the symptoms of heat illness and providing an effective response requires promptly acting on early warning signs. Common early symptoms and signs of heat illness include headache, muscle cramps, and unusual fatigue. However, progression to more serious illness can be rapid and can include unusual behavior, nausea/vomiting, weakness, rapid pulse excessive sweating or hot dry skin, seizures, and fainting or loss of consciousness.

Any of these symptoms require immediate attention.

Even the initial symptoms may indicate serious heat exposure. If medical personnel are not immediately available on-site, and you suspect severe heat illness, you must call 911. Regardless of the worker’s protests, no employee with any of the symptoms of possible serious heat illness noted above should be sent home or left unattended without medical assessment and authorization.

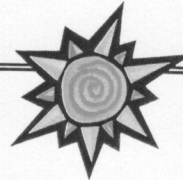
Training

Supervisors and employees must be trained in the risks of heat illness, and the measures to protect themselves and their co-workers. Training should include:

- ✦ Why it is important to prevent heat illness
- ✦ Procedures for acclimatization
- ✦ The need to drink approximately one quart per hour of water to replace fluids
- ✦ The need to take breaks out of the heat
- ✦ How to recognize the symptoms of heat illness
- ✦ How to contact emergency services, and how to effectively report the work location to 911

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CAL/OSHA HEAT ADVISORY



When employees work in hot conditions, employers must take special precautions in order to prevent heat illness. Heat illness can progress to heat stroke and be fatal, especially when emergency treatment is delayed. An effective approach to heat illness is vital to protecting the lives of California workers.

Employers of outdoor workers must comply with the new permanent heat illness prevention standard. This standard requires employers to take four simple steps that include shade, water, training and written procedures. These can greatly reduce the risk of outdoor workers developing heat illness.

Heat illness results from a combination of factors including environmental temperature and humidity, direct radiant heat from the sun or other sources, air speed, and workload. Personal factors, such as age, weight, level of fitness, medical condition, use of medications and alcohol, and acclimatization affect how well the body deals with excess heat.

Heat Illness Risk Reduction

1. Recognize the Hazard.

There is no absolute cut-off below which work in heat is not a risk. With heavy work at high relative humidity or if workers are wearing protective clothing, even work at 70°F can present a risk. In the relative humidity levels often found in hot areas of California (20 to 40 percent) employers need to take some actions to effectively reduce heat illness risk when temperatures approach 80°F. At temperatures above 90°F, especially with heavy work, heat risk reduction needs to be a major concern. **It is especially important to be vigilant during periods of abnormally high heat.**

2. Water.

There must be an adequate supply of clean, cool, potable water. Employees who are working in the heat need to drink 4 eight-ounce glasses of water per hour, including at the start of the shift, in order to replace the water lost to sweat. For an eight-hour day this means employers must provide two or more gallons per person. Many people can be very dehydrated and not feel thirsty at all. Employees need ongoing encouragement to consume adequate water.

3. Shade and Rest Breaks.

Employers are required to provide shade for recovery periods when employees need relief from the heat. The direct heat of the sun can add as much as 15 degrees to the heat index. Heat illness occurs due to a combination of environmental and internal heat that cannot be adequately dissipated. Rest breaks are important to provide time for cooling and provide an opportunity to drink water. Breaks should be taken in cooler, shaded areas. Wide brimmed hats can also decrease the impact of direct heat.

4. Acclimatization.

People need time for their bodies to adjust to working in heat. This "acclimatization" is particularly important for employees (1) returning to work after a prolonged absence or recent illness, (2) recently moving from a cool to a hot climate, or (3) working during the beginning stages of a heat wave. For heavy work under extremely hot conditions, a period of 4 to 10 days of progressively increasing work time starting with about 2 hours work per day, though not required, is recommended. Also recommended, for less severe conditions at least the first 2 or 3 days of work in the heat should be limited to 2 to 4 hours. Monitor employees closely for signs and symptoms of heat illness, particularly when they have not been working in heat for the last few days or when a heat wave occurs.

5. Prompt Medical Attention.

Recognizing the symptoms of heat illness and providing an effective response requires promptly acting on early warning signs. Common early symptoms and signs of heat illness include headache, muscle cramps, and unusual fatigue. However, progression to more serious illness can be rapid and can include unusual behavior, nausea/vomiting, weakness, rapid pulse, excessive sweating or hot dry skin, seizures, and fainting or loss of consciousness. **Any of these symptoms require immediate attention.**

Even early symptoms may indicate serious heat exposure. If first aid trained personnel are not immediately available on-site to make an assessment and workers show any abnormal response to the heat, you should call 911 immediately. Regardless of the worker's protests, no employee with any of the symptoms of possible serious heat illness noted above should be sent home or left unattended without medical assessment and authorization.

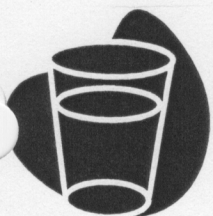
6. Training.

Supervisors and employees must be trained in the risks of heat illness and the proper measures to protect themselves and their co-workers. Training should include:

1. Why it is important to prevent heat illness
2. Procedures for acclimatization
3. The need to drink water frequently
4. The need to take breaks out of the heat
5. How to recognize the symptoms of heat illness
6. How to contact emergency services and how to effectively report the work location to 911
7. The importance of choosing water instead of soda or other caffeinated beverages and avoiding alcoholic beverages all together during high heat.

7. Written Procedures

Employers are required to put their heat illness prevention procedures, including employee training in writing. It is recommended this document be incorporated into the employers Injury and Illness Prevention Plan. Other recommended procedures include account for all your workers during and at the end of the work shift. Check the heat index prior to starting work each day. If the temperatures are high, consider beginning and ending your shifts early. If possible, work should be performed in the shade.



Drink water frequently.
Avoid soda, alcohol and coffee.

Heat Illness Prevention

Guidance for Workers

Awareness of heat illness symptoms can save your life or the life of a co-worker

- If you are coming back to work from an illness or an extended break or you are just starting a job working in the heat, it is important to be aware that you are more vulnerable to heat stress until your body has time to adjust. Let your employer know you are not used to the heat. It takes about 5 – 7 days for your body to adjust.
- Drinking plenty of water frequently is vital to workers exposed to the heat. An individual may produce as much as 2 to 3 gallons of sweat per day. In order to replenish that fluid the worker should drink 3 to 4 cups of water every hour starting at the beginning of your shift.
- Taking your breaks in a cool shaded area and allowing time for recovery from the heat during the day are effective ways to avoid heat illness.
- Avoid or limit the use of alcohol and caffeine during periods of extreme heat. Both dehydrate the body.
- If you or a co-worker start to feel symptoms such as nausea, dizziness, weakness or unusual fatigue, let your supervisor know and rest in a cool shaded area. If symptoms persist or worsen seek immediate medical attention.
- Whenever possible, wear clothing that provides protection from the sun but allows airflow to the body. Protect your head and shade your eyes if working outdoors.
- When working in the heat be sure to pay extra attention to your co-workers and be sure you know how to call for medical attention.

**For more information call Cal/OSHA or visit our Web site at:
www.dir.ca.gov**

Protecting Workers from Heat Stress

CCR, T8 - 3203, 3363, 3380-3390, 3439, 3457

Heat-related illnesses have caused deaths among California workers. Workers in agriculture are especially vulnerable. Farm workers often work in the open heat and may have little opportunity to rest in a cool area. Also, acclimatization (adjustment of the body to heat exposure) is difficult for farm workers due to irregular work schedules, heat waves and not having enough cool water readily available.

ATTENTION:

- Increase fluids (1 to 2 quarts per hour) and rest breaks during high temperatures, especially when above 100°F and during periods of unusually high humidity.
- Stay alert for early symptoms of excessive exposure to heat in workers and train employees to do the same.
- Ensure proper provisions (such as communication system) are available for contacting a doctor or medical assistance to avoid unnecessary delay of treatment and first aid.
- Consumption of alcohol will add to dehydration and increase the risk of health illness.

What are some of the symptoms and risks of heat stress?

- Loss of concentration and difficulty in focusing on a task.
- Increased irritability and rise in heart rate and body temperature.
- Little or no desire to drink, fatigue and headache - results from loss of fluids.
- Fainting and *possible death* if person is not removed from the source of the heat stress.



How can you reduce the risk of heat stress?

- Provide cool water as close as possible and encourage workers to drink often (this helps to replace fluids lost through sweating).
- Train supervisors and first aid workers to recognize heat stress disorders.
- Encourage supervisors to move workers to a cooler place or reduce the workload and to stop and rest if they become extremely uncomfortable.
- Encourage workers to wear appropriate clothing (cotton garments) and to use sunscreen, hats, and sunglasses.
- Be aware that workers who are obese, pregnant, older, and on certain medications are at greater risk for heat stress.

Some of the symptoms of heat stress

<p>HEAT STROKE, the most serious health problem for workers in a hot environment, is caused by the body's failure to regulate its core temperature. Sweating stops and the body can no longer release excess heat. <i>Victims of heat stroke usually die unless treated promptly.</i> Signs include:</p> <ul style="list-style-type: none"> • Mental confusion, delirium, loss of consciousness, convulsions, or coma. • Body temperature of 106°F or higher. • Hot, dry skin that may be red, mottled, or bluish. 	<p><i>How should heat stroke be treated?</i> Immediately call for medical assistance. Prompt first aid and medical treatment can prevent permanent injury to the brain and other vital organs. While awaiting medical help, the victim should be moved to the coolest, shadiest spot available, fanned vigorously and the victim's skin and clothing should be gradually soaked with cool water. *</p>
<p>HEAT EXHAUSTION results from loss of fluid through sweating and from not drinking enough replacement fluids. The worker still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. The skin is clammy and moist, while the body temperatures are normal or slightly elevated.</p>	<p><i>How should heat exhaustion be treated?</i> The victim should rest in a cool place and drink water or an electrolyte solution, such as Gatorade or similar beverages used by athletes to restore potassium and salt. Severe cases, in which the victim vomits or loses consciousness, may require longer treatment under medical supervision.</p>
<p>HEAT CRAMPS, painful spasms of the muscles, are caused by the body's loss of salt.</p>	<p><i>How should heat cramps be treated?</i> As in the case of heat exhaustion, a victim of heat cramps should drink an electrolyte solution such as Gatorade. Seek medical attention in the case of severe cramping, vomiting, or loss of consciousness.</p>
<p>FAINTING can occur when a worker is not acclimatized to a hot environment.</p>	<p><i>How should fainting be treated?</i> At first, allow the victim to lie down on his or her back. When consciousness has been regained, the victim should recover after a brief period of walking around slowly. Immediate return to work in the heat is not advisable as heat stress may recur.</p>
<p>HEAT RASH, also known as prickly heat, can be extensive and can be complicated by infection. Heat rash can be so uncomfortable that sleep is disrupted. It can impede a worker's performance and even result in a temporary total disability.</p>	<p><i>How should heat rash be treated?</i> Place the victim in a cool place and allow the skin to dry.</p> <p>* Note: In all cases victim should be moved to a cool and shaded area.</p>

For additional information see the Cal/OSHA [Farm Labor Contractor Safety and Health Guide \(Section 5\)](#), the US Dept. of Labor Fact Sheet, and the National Institute for Occupational Safety and Health (NIOSH) booklet entitled "Working in Hot Environments".