Heat Illness Protection Program

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1. Program Description

The purpose of this program is to ensure that all UC Riverside employees, working in outdoor places of employment or in other areas where environmental risk factors for heat illness are present, are protected from heat illness and are knowledgeable of heat illness symptoms, methods to prevent illness, and procedures to follow if symptoms occur.

2. Scope

The Heat Illness Prevention Program applies to all University employees that may be at risk of heat illness and applies to all indoor and outdoor places of employment where environmental risk factors for heat illness are present.

3. Definitions

**Acclimatization**: The 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**: 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**: 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**: Factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affects the body's water retention or other physiological responses to heat.

**Potable**: A liquid that is suitable and safe to drink.

**Preventative Recovery Period**: A period, at least five minutes, used to recover from the heat in order to prevent further heat illness.

**Shade**: 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.

4. Responsibilities

Employees

- Awareness and compliance with all appropriate heat illness prevention procedures while performing assigned duties
- Take extra precautions while wearing PPE and face covering by reducing the interval times between breaks and visits to shade.
- Employees are ultimately responsible for drinking adequate amounts of hydrating fluids when the environmental risk factors for heat illness are present (See Appendix A)
- Ensure access to a shaded area is available to recover from heat related symptoms
- Request supervisors schedule hot area or outdoor tasks early in the day or at night when temperatures are lower
- Inform their supervisor if shade and/or water is inadequate
- Report symptoms of heat related illness promptly to their supervisor
- Call 911 to request emergency medical services in the event medical assistance is required

Supervisors

- Identify and maintain records of all tasks/employees that are required to work indoors or outdoors where potential heat illness could occur
- Require all affected employees to receive proper training on heat illness prevention and comply with all appropriate procedures
- Schedule outdoor or hot area tasks for early in the day or at night when temperatures are lower
- Take extra precautions for teams wearing PPE and face coverings by reducing the interval times between breaks and increasing visits to shade.
- Ensure that adequate water and shade are available at the job site when the environmental risk factors for heat illness are present
- Encourage employees to drink water frequently
- Provide coolers of chilled water or ice
- Call 911 to request emergency medical services in the event medical assistance is required
Environmental Health and Safety (EH&S)

- Establish and update the written Heat Illness Prevention Program
- Provide consultation/training to departments who fall within the scope of the program
- Assist departments in determining when, where, and how water and shade is provided

5. Program Components

The following elements of the University’s program for heat illness prevention provide specific information for departments and supervisors complying with the program:

**Provision of Water**

Whenever environmental risk factors for heat illness exist, supervisors are responsible to ensure that clean, fresh, and cool potable water is readily available to employees. See Appendix A for a map of refill stations on campus.

Where unlimited drinking water is not immediately available from a plumbed system, supervisors must provide enough water for every employee to be able to drink one quart of water per hour for the entire shift (at least 2 gallons per employee for an 8-hour shift). Smaller quantities of water may be provided at the beginning of the shift if there are effective procedures for replenishing the water supply during the shift as needed.

The Cal/OSHA standard requires not only that water be provided, but that supervisors encourage employees to drink frequently. Employees must understand that thirst is not an effective indicator of a persons need for water and it is recommended that individuals drink one quart of water, or four 8-ounce cups, per hour when working in hot environments.

![Fluid Replacement Guide](image-url)
Departments shall take one or more of the following steps to ensure employees have access to drinking water:

1. Provide access to drinking fountains  
2. Supply water cooler/dispenser and single service cups  
3. Supply sealed one time use water containers

Drinking water and water dispensers shall meet the following requirements:

- All sources of drinking water shall be maintained in a clean and sanitary condition
- Drinking water must always be kept cool. When temperatures exceed 90°F it is recommended that ice be provided to keep the water cool. (Ice is available at EH&S)
- Potable drinking water dispensers used to provide water to more than one person shall be equipped with a spigot or faucet.
- Any container used to store or dispense drinking water shall be clearly marked as to the nature of its contents and shall not be used for any other purpose.
- Dipping or pouring drinking water from containers, such as barrels, pails or tanks, is prohibited regardless of whether or not the containers are fitted with covers.
- The use of shared cups, glasses or other vessels for drinking purposes is prohibited.
- Non-potable water shall not be used for drinking.
- Outlets for non-potable water shall be posted in a manner understandable to all employees that the water is unsafe for drinking.

Access to Shade

Supervisors are responsible to ensure that employees have access to a shaded area. Shaded areas should be large enough to accommodate 25 percent of the employees on a shift and allow employees to sit in the shade without touching each other.

The nearest shaded area must be as close as practicable. Usually this will mean that shade must be reachable within a 2 1/2 minute walk, but in no case more than 1/4-mile or a five-minute walk away, whichever is shorter.

Canopies, umbrellas or other temporary structures may be used to provide shade, provided they block direct sunlight. Trees and dense vines can provide
shade if the canopy of the trees is sufficiently dense to provide substantially complete blockage of direct sunlight. Areas shaded by artificial or mechanical means, such as by a pop-up canopy as opposed to a tree, must provide means for employees to avoid contact with bare soil.

![Shaded area](image)

The interior of a vehicle may be used to provide shade if the vehicle is air-conditioned and the air conditioner is operating.

If the National Weather Service, as of 5 p.m. the previous day, forecasts the temperature to be over 85°F, shade structures must be available at the beginning of the shift and present throughout the day. Regardless of predicted temperatures, supervisors must always have the capability to provide shade promptly if an employee requests it. If the temperature exceeds 90°F, shade must actually be present regardless of the previous day’s predicted temperature high.

**Acclimatization**

Supervisors are required to acclimatize employees and allow time to adapt when temperatures rise suddenly and employee’s risk for heat illness increase. **Acclimatization** may also be required for new employees, employees working at temperatures to which they have not been exposed for several weeks or longer, or employees assigned to new jobs in hot environments. Generally, about four to fourteen days of daily heat exposure is needed for acclimatization. Heat acclimatization requires a minimum daily heat exposure of about two hours of work. Gradually increase the length of work each day until an appropriate schedule adapted to the required activity level for the work environment is achieved. This will allow the employee to acclimate to conditions of heat while reducing the risk of heat illness.

It should be noted that new employees are among those most at risk of suffering the consequences of inadequate acclimatization. Supervisors with new employees should be extra-vigilant during the acclimatization period, and respond immediately to signs and symptoms of possible heat illness.
**Preventive Recovery Periods**

The purpose of the recovery period is prevention of heat illness. The supervisor is required to provide access to shade for employees who believe they need preventive recovery period from the effects of heat and for any who exhibit indications of heat illness.

Access to shade must be allowed at all times, and employees must be allowed to remain in the shade for at least five minutes. If employees are wearing PPE including but not limited to respirators, face coverings, disposable coveralls, backpack vacuums, arc flash suits, and welding gear they need to be allowed more frequent breaks to prevent overheating. These breaks may need to be longer in order to allow the employees to remove PPE to cool more completely. In addition, activities in hot locations like in the tunnels, some welding or pipe soldering operations will require more frequent breaks where the employees need to leave the area to a cooler area often.

The purpose of the preventive recovery period is to reduce heat stress on the employee. The preventive recovery period is not a substitute for medical treatment.

**Emergency Procedures**

If an employee has any symptoms of heat illness, first-aid procedures should be initiated without delay. Common early signs and symptoms of heat illness include headache, muscle cramps, and unusual fatigue. However, progression to more serious illness can be rapid, and can include loss of consciousness, seizures, mental confusion, unusual behavior, nausea or vomiting, hot dry skin, or unusually profuse sweating.

Any employee exhibiting any of the above-mentioned symptoms requires immediate attention. Even the initial symptoms may indicate serious heat exposure. If medical personnel are not immediately available onsite and serious heat illness is suspected, emergency medical personnel should be immediately contacted and on-site first aid undertaken. No employee with symptoms of possible serious heat illness should be left unattended or sent home without medical assessment and authorization.

All Supervisors and employees must be trained to recognize and respond to symptoms of possible heat illness.

If any employee exhibits signs or symptoms of heat stroke emergency medical services must be contacted. Supervisors must be able to provide clear and
precise directions to the worksite and should carry cell phones or other means of communication to ensure that emergency services can be called.

6. Reporting Requirements

Constant awareness of and respect for heat illness prevention procedures and compliance with all applicable UC Riverside safety rules is mandatory.

Employees may report any safety concerns to their supervisor or EH&S (827-5528.)

Supervisors may issue warnings to employees and implement disciplinary actions up to and including termination for failure to follow the guidelines of this program.

Representatives of EH&S are authorized to issue safety warnings to departments, supervisors, and employees and stop unsafe work from continuing.

7. Training Requirements and Competency Assessment

Training shall be provided by EH&S for all potentially impacted employees, and their supervisors, working where environmental risk factors for heat illness are present. Training information shall include, but not be limited to:

- Environmental and personal risk factors for heat illness
- Procedures for identifying, evaluating, and controlling exposure to environmental risk factors for heat illness
- The importance of frequent consumption of hydrating fluids, up to 1 quarts (4 cups of water) per hour, when environmental risk factors for heat illness are present. Particularly when employee is excessively sweating during the exposure
The importance of acclimatization
Different types of heat illness and the common signs and symptoms of heat illness
The importance of immediately reporting symptoms or signs of heat illness, in themselves or in co-workers, to their supervisor
Understanding the procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by emergency medical service
Procedures for ensuring that, in the event of an emergency, clear and precise direction to the work site can and will be provided to emergency responders

Supervisors shall receive training on the following topics prior to being assigned to supervise outdoor employees.

The training information required of the employees, detailed above
Procedures supervisors are to follow to implement the provisions of this program
Procedures the supervisor shall follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures

Retraining will be required under any of the following conditions:

Annual retraining is encouraged but not required unless one of the conditions listed below is met. Periodically, EH&S may assign training to teams as an update or to refresh the information as part of safety initiative. If the training is assigned it is required.

Changes in the workplace render previous training obsolete or inadequate
Inadequacies in an employee's knowledge of heat illness prevention indicate that the employee has not retained the required information and heat stress management strategies

UCR online heat illness training is always available in the UC Learning Center here: Heat Illness

Training records shall be maintained by EH&S for a minimum of 3 years beyond employment.

8. Information and External References

Title 8 California Code of Regulations, General Industry Safety Orders - §3395
Heat Illness Prevention: What you need to know

Heat Illness Prevention enforcement Q&A
http://www.dir.ca.gov/dosh/heatIllnessQA.html

Protect Yourself from Heat Illness Cards

OSHA-NIOSH Heat Safety Tool App
https://www.cdc.gov/niosh/topics/heatstress/heatapp.html

CDC Poster

CDC Infographic
https://www.cdc.gov/niosh/topics/heatstress/infographic.html

CDC Protect Yourself from Heat Stress Podcast
https://tools.cdc.gov/medialibrary/index.aspx#/media/id/303858

National Ag Safety Database: Keep Cool
https://nasdonline.org/182/d000004/keep-cool.html
A Guide to refillable water stations at UCR
Summer's coming.
Extremely hot weather can cause sickness or even death.

WHAT TO WATCH FOR

Heat exhaustion symptoms can include:
- Heavy Sweating
- Feeling Weak or Confused
- Dizziness
- Nausea
- Headache
- Cold, clammy skin
- Fast, weak heartbeat

Heatstroke symptoms can include:
- Lack of sweating
- Confusion, disorientation, staggering
- Red, hot, and dry skin
- Throbbing headache
- Nausea and vomiting
- Rapid heartbeat
- Rapid, shallow breathing

CALL 911

Drink plenty of water and stay cool!

Sources: The American Red Cross, American Academy of Family Physicians.
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