

Heat Illness Prevention Program

California State University Channel Islands

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Environmental, Health and Safety*

Table of Contents

Statement / Purpose	3
Scope	3
Authority / References	3
Definitions	3
Responsibilities	4
Provision of Water	5
Access to Shade.....	5
Monitoring the Weather	6
Heat Wave Procedures	7
High Heat Procedures (≥ 95 degrees Fahrenheit)	7
Acclimatization	8
Emergency Response Procedures and Handling of a Sick Employee	9
Handling a Sick Employee.....	9
Employee and Manager/Supervisory Training	10
APPENDIX A: Procedures to Consider for the Provision of Water	11

Statement / Purpose

It is the intent of California State University to provide employees with a safe and healthful environment. Consistent with that intent, the purpose of this program is to reduce the risk of employee work related heat illness.

Scope

This heat illness prevention program applies to all University employees doing outdoor work. This program is not specifically designed for mitigating exposure to excessive heat indoors; prior to work in which indoor heat exposure may be an issue, employees should contact their supervisor or the office of Environmental, Health and Safety.

The training and operational elements found in this plan will provide employees, managers and supervisors with the tools necessary to anticipate environmental conditions that contribute to heat related illness, to recognize when work assignments place employees at risk and what job instructions need to be communicated to employees regarding the prevention of heat related illness.

Authority / References

Heat Illness Prevention Standard, Title 8 CCR 3395
Injury and Illness Prevention Program, Title 8 CCR 3203

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.

"Heat Wave" means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

"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.

"Shade" means blockage of direct sunlight. 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.

Shade may be provided by any natural or artificial means that does not expose employees to unsafe or unhealthy conditions and that does not deter or discourage access or use.

“*Temperature*” means the dry bulb temperature in degrees Fahrenheit obtainable by using a thermometer to measure the outdoor temperature in an area where there is no shade. While the temperature measurement must be taken in an area with full sunlight, the bulb or sensor of the thermometer should be shielded while taking the measurement, e.g. with the hand or some other object, from direct contact by sunlight.

Responsibilities

The following persons have the authority and responsibility for implementing the provisions of this program.

Office of Environmental, Health and Safety; Director, x-8550

1. Develop and maintain the written Heat Illness Prevention program
2. Provide support to management regarding heat-related illness prevention training to employees and management on the proper work practices necessary to maintain a safe and healthful working environment.
3. Review the OSHA 300 Log entries to track any trends of heat-related disorders and initiate the training and workstation corrections necessary to alleviate recurrences.
4. Periodically review and revise the University’s Heat Illness Prevention Program as technical and/or regulatory advances dictate.

Facilities Services (FS); Associate Directors, x-8464

1. Provide supplies and equipment as required.
2. Assign managers/supervisors the responsibility for implementing procedures.
3. Periodically check if procedures are being followed.

FS Management/Supervision:

1. Management/Supervision of a given department has the responsibility to ensure the working conditions within that area provide a safe and healthful working environment.
2. Provide heat-related illness prevention training to employees and management on the proper work practices necessary to maintain a safe and healthful working environment.
3. If an employee reports symptoms or an actual injury related to a heat-related illness, immediately call Public Safety by dialing 911 or (805) 437-4888.
4. Upon initial knowledge of a work-related heat disorder, management shall communicate with the Environmental Health and Safety Office (EHS). Any recommendations made by EHS shall be immediately implemented.

Employees

1. Each employee has the responsibility to report any work-related injury or illness to their immediate supervisor.
2. An employee should attend the prescribed training on heat illness prevention and apply the elements of this program to his/her work assignment.
3. It is the responsibility of every employee to immediately communicate to management, directly or through the employee’s supervisor, symptoms or signs of heat illness in themselves, or in co-workers.

Provision of Water

Employees are encouraged to drink water frequently and fresh, pure, and suitably cool potable water shall be readily available to employees free of charge.

1. Supervisors are responsible to ensure employees have an adequate supply of drinking water.
2. Supervisors shall encourage the 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.
3. When unlimited drinking water is not immediately available from a plumbed system or otherwise continuously supplied, drinking water will be provided in sufficient quantities to provide one quart, or four eight-ounce cups, per employee per hour for the entire shift (at least 2 gallons per employee for an 8-hour shift).
4. If there are effective procedures for replenishing the water supply during the shift, a minimum of 2 quarts of water per employee may be provided at the beginning of the shift. (See Appendix A for: Procedures to Consider for the Provision of Water.)
5. Disposable cups or other appropriate personal container will be made available to workers and will be kept clean until used.
6. Water containers will be placed as close as practicable to the workers (given the working conditions and layout of the worksite), to encourage the frequent drinking of water. If field terrain prevents the water from being placed as close as practicable to the workers, bottled water or personal water containers will be made available, so that workers can have drinking water readily accessible.
7. Water containers will be relocated to follow along with the crew, so drinking water will remain readily accessible.
8. Water containers will be kept in sanitary condition.
9. 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.
10. When the temperature exceeds or is expected to exceed 90 degrees Fahrenheit, brief 'tailgate' meetings will be held each day to review with employees the importance of drinking water and the signs and symptoms of heat illness.
11. When the temperature equals or exceeds 95 degrees Fahrenheit or during a heat wave, the number of water breaks will be increased, and workers will be reminded throughout the work shift to drink water.

Access to Shade

The campus has many fixed structures that can provide cool rest areas, and mature landscaping that can provide shade in many areas. Shade structures will be used when ready access to these fixed features is not available.

1. Shade shall be present when the temperature exceeds 80 degrees Fahrenheit. When the outdoor working conditions equal or exceed 80 degrees Fahrenheit, supplementary shade structures will be utilized and placed as close as practical to the workers, if site conditions do not allow for appropriate shade protection. Shade means protection from the sun and other sources of radiated heat and sufficient natural or artificial ventilation to allow cooling.

2. Shade opportunities/structures will be available at the site to accommodate all employees of the shift as needed. Workers will be informed of the location of the shade opportunities/structures.
3. Shade shall be available when the temperature does not exceed 80 degrees Fahrenheit. When the outdoor temperature in the work area does not exceed 80 degrees Fahrenheit employers shall either provide timely access to shade upon an employee's request or where the employer can demonstrate that it is infeasible or unsafe to have a shade structure, or otherwise to have shade present on a continuous basis, the employer may utilize alternative procedures for providing access to shade if the alternative procedures provide equivalent protection.
4. Employees shall be allowed and encouraged to take a preventative cool-down rest in the shade when they feel the need to do so to protect themselves from overheating. Such access to shade shall be permitted at all times.
5. An individual employee who takes a preventative cool-down rest (A) shall be monitored and asked if he or she is experiencing symptoms of heat illness; (B) shall be encouraged to remain in the shade; and (C) shall not be ordered back to work until any signs or symptoms of heat illness have abated, but in no event less than 5 minutes in addition to the time needed to access the shade.
 - a. If an employee exhibits signs or reports symptoms of heat illness while taking a preventative cool-down rest or during a preventative cool-down rest period, the employer shall provide appropriate first aid or emergency response.
6. The amount of shade present during meal periods shall be at least enough to accommodate the number of employees on the meal period who remain onsite.
 - a. If they are necessary, shade structures will be relocated to follow along with the crew and they will be placed as close as practical to the employees, so that access to shade is provided at all times.
 - b. In situations where trees or other vegetation are used to provide shade, the thickness and shape of the shaded area will be evaluated before assuming that sufficient shadow is being cast to protect employees.
 - c. In situations where it is not safe or feasible to provide shade, steps will be taken to provide alternative cooling measures but with equivalent protection as shade.

Monitoring the Weather

The supervisor shall be trained and directed to check in advance the current and extended weather forecast, to include remote work activity. Weather forecasts can be checked using a variety of resources that should include any one of the following:

1. Review of the internet <http://www.nws.noaa.gov> for the area in question.
2. Review of the Weather Channel TV Network.
3. Calling the National Weather service at (805) 988-6610 for the Los Angeles service area (to include Ventura County).

The work schedule will be planned in advance, taking into consideration whether high temperatures or a heat wave is expected. This type of advance planning should take place all summer.

Prior to each workday, the forecasted temperature and humidity for the worksite will be reviewed and will be compared against the National Weather Service Heat Index to evaluate the risk level for heat illness. A determination will be made of whether or not workers will be exposed at a temperature and humidity characterized as either “extreme caution” or “extreme danger” for heat illnesses. It is important to note that the temperature at which these warnings occur must be lowered as much as 15 degrees if the workers under consideration are in direct sunlight.

Prior to each workday, the supervisor will monitor the weather as above or with the aid of a thermometer at the worksite. This information will be taken into consideration to determine when it will be necessary to make modifications to the work schedule (such as stopping work early, rescheduling the job, working at night or during the cooler hours of the day, increasing the number of water and rest breaks).

Heat Wave Procedures

During an identified heat wave or heat spike, the supervisor of applicable personnel must address this abnormal condition and reassign, reschedule, or in some manner alter the worker schedule to avoid prolonged exposure to excessive heat conditions.

Supervisors also shall conduct briefings and safety trainings at the beginning of the work shift to address and mitigate any adverse exposure to impacted workers, review heat illness prevention procedures, the weather forecast and emergency response.

If schedule modifications are not possible, workers will be provided with an increased number of water and rest breaks and will be observed closely for signs and symptoms of heat illness.

During periods of significant heat exposure supervisors shall assign work in pairs to allow for the “buddy” system to exist. Each employee will be on the lookout for signs and symptoms of heat illness for the other worker they are with.

High Heat Procedures (≥ 95 degrees Fahrenheit)

High Heat Procedures are additional preventive measures applicable when the temperature equals or exceeds 95 degrees Fahrenheit.

Effective communication will be maintained so that employees at the worksite can contact a supervisor when necessary by implementing one or more of the following:

1. Supervisor or designee observation of 20 or fewer employees
2. Mandatory buddy system during periods of significant heat exposure supervisors shall assign work in pairs to allow for the “buddy” system to exist. Each employee will be on the lookout for signs and symptoms of heat illness for the other worker they are with.
3. If the supervisor is unable to be near the workers (to observe them or communicate with them), then Regular communication with sole employee such as campus radios or cellular phone will be used for this purpose.

Additionally, the supervisor will do the following:

1. Conduct a pre-shift meeting before the commencement of work to review the high heat procedures, encourage employees to drink plenty of water, and remind employees of their right to take a cool-down rest when necessary.
2. For periods of high heat, the supervisor/lead person will maintain contact throughout the work day to ensure personnel are aware of the hydration requirements to drink plenty of water throughout their shift and that they maintain full awareness of the conditions.
3. Employees will be observed for alertness and signs and symptoms of heat illness. When the supervisor is not available, an alternate responsible person may be assigned, to look for signs and symptoms of heat illness. Such a designated observer will be trained and know what steps to take if heat illness occurs.
4. Designation of one or more employees on each worksite as authorized to call for emergency medical services, and allowing other employees to call for emergency services when no designated employee is available.

Acclimatization

Acclimatization is the temporary and gradual physiological change in the body that occurs when a worker is subjected suddenly to a hotter work environment. The body needs time to adapt when temperatures rise suddenly, and employees have a higher risk of heat illness when a heat wave strikes or when starting a new job that exposes the employee to heat to which the employee has not yet adjusted. Inadequate acclimatization is also more likely in conditions of physical stress. Employees and supervisors will be trained on the importance of acclimatization and how it is developed.

The supervisor will monitor the weather for sudden heat waves, or increases of temperature that the applicable personnel have not been accustomed to for several weeks or longer. All employees shall be closely observed by a supervisor or designee during a heat wave. For purposes of acclimatization, “heat wave” means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

An employee who has been newly assigned to a high heat area shall be closely observed by a supervisor or designee for the first 14 days of the employee's employment.

During such a dramatic shift in weather conditions the University will employ means and methods to reduce or eliminate the heat-related exposure to applicable personnel, which may include the re-assignment to indoor or other non-threatening duties. Additional cooling procedures will be provided for un-acclimatized employees to allow them time to adapt to high heat conditions.

During a heat wave all exposed employees will be observed closely (or maintain frequent communication via phone or radio) for possible symptoms of heat illness.

Emergency Response Procedures and Handling of a Sick Employee

Prior to the start of the shift, a determination will be made of whether or not a language barrier is present at the site and steps will be taken to ensure that emergency medical services can be immediately called in the event of an emergency.

The supervisor will ensure effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor or emergency medical services when necessary. All supervisors will carry radios or a cell phone if reception in the area is reliable; to ensure that emergency medical services can be called. Checks will be made to ensure that these electronic devices are functional prior to each shift.

During work in hot conditions workers will be reminded and encouraged to immediately report to their supervisor any signs or symptoms they are experiencing.

Workers' assignments are usually within the boundaries of the university and their precise work location is known by field personnel and first responders. If work is taking place in a remote location and/or off campus, staff need to have communications capable of obtaining emergency assistance.

An employee exhibiting signs or symptoms of heat illness shall be monitored and shall not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services.

When an employee is showing symptoms related to heat illness, emergency medical services will be contacted, if deemed necessary.

If necessary, emergency services will be called immediately and steps will be taken immediately to keep the stricken employee cool and comfortable to reduce the possibility of progression to more serious illness.

- Emergency services shall be contacted by dialing 911 on a campus phone or cell phone or through the radio network.
- Ensuring clear and precise directions to the work site can be provided as needed to emergency responders.
- If necessary, transport the ill employees to a place where they can be reached by an emergency medical provider.
- If necessary, the supervisor will designate an employee or employees to physically go to the nearest road or highway where emergency responders can see them.
- CSU Channel Islands Police officers are Emergency Medical Technicians (EMT's). As EMT's they are able to assess a patient's condition and to manage respiratory, cardiac, and trauma emergencies, treat first aid and perform CPR/AED functions until paramedics arrive.

Handling a Sick Employee

When an employee displays possible signs or symptoms of heat illness, police EMTs will be summoned to determine whether resting in the shade and drinking cool water will suffice or if emergency service providers will need to be called. A sick worker will not be left alone.

Emergency service providers will be called immediately, as described in the emergency procedures above, if an employee displays these signs or symptoms of heat illness: loss of consciousness, incoherent speech, convulsions, red and hot face or does not get better after drinking cool water and resting in the shade. While the ambulance is in route, first aid will be initiated (cool the worker: place the worker in the shade, remove excess layers of clothing, place ice pack in the armpits and joint areas and fan the victim). A worker with heat illness must not be allowed to leave the site alone.

Employee and Manager/Supervisory Training

Managers/Supervisors and/or lead persons will be trained, prior to the start of the heat related period, on the provisions found within these procedures for which they are to be accountable for and responsible to implement.

Employees subject to the heat illness prevention program guidelines and procedures shall be trained on the provisions found within these procedures.

When the temperature exceeds 95 degrees Fahrenheit safety tailgate meetings and/or employee briefings will be held to review the weather conditions, to reinforce provisions in the heat illness prevention program, ensure communications, and to provide awareness on, and encourage remaining hydrated during periods of extreme heat.

APPENDIX A: Procedures to Consider for the Provision of Water
(include but are not limited to):

- Drinking water containers (of five to 10 gallons each) will be brought to the site, so that at least two quarts per employee are available at the start of the shift. All workers whether working individually or in smaller crews, will have access to drinking water.
- Paper cone rims or bags of disposable cups and the necessary cup dispensers will be made available to workers and will be kept clean until used.
- As part of the Effective Replenishment Procedures, the water level of all containers will be checked periodically (e.g. every hour, every 30 min), and more frequently when the temperature rises. Water containers will be refilled with cool water, when the water level within a container drops below 50 percent. Additional water containers (e.g. five gallon bottles) will be carried, to replace water as needed.
- Water will be fresh, pure, and suitably cool and provided to employees free of charge. Supervisors will visually examine the water and pour some on their skin to ensure that the water is suitably cool. During hot weather, the water must be cooler than the ambient temperature but not so cool as to cause discomfort.
- Water containers will be located as close as practicable to the areas where employees are working (given the working conditions and layout of the worksite), to encourage the frequent drinking of water. If field terrain prevents the water from being placed as close as possible to the workers, bottled water or personal water containers will be made available, so that workers can have drinking water readily accessible.
- Since water containers are smaller than shade structures, they can be placed closer to employees than shade structures. Placing water only in designated shade areas or where toilet facilities are located is not sufficient. When employees are working across large areas, water will be placed in multiple locations. For example, on a multi-story construction site, water should be placed in a safely accessible location on every floor where employees are working.
- All water containers will be kept in sanitary condition. Water from non-approved or non-tested water sources (e.g., untested wells) is not acceptable. If hoses or connections are used, they must be governmentally approved for potable drinking water systems, as shown on the manufactures label.
- Daily, workers will be reminded of the location of the water coolers and of the importance of drinking water frequently. When the temperature exceeds or is expected to exceed 80 degrees Fahrenheit, brief 'tailgate' meetings will be held each morning to review with employees the importance of drinking water, the number and schedule of water and rest breaks and the signs and symptoms of heat illness.
- Audible devices (such as whistles or air horns) will be used to remind employees to drink water.
- When the temperature equals or exceeds 95 degrees Fahrenheit or during a heat wave, pre-sift meetings before the commencement of work to encourage employees to drink plenty of water, and remind employees of their right to take a cool-down rest when necessary will be conducted. Additionally, the number of water breaks will be increased. Supervisors/foreman will lead by example and workers will be reminded throughout the work shift to drink water.
- Individual water containers or bottled water provided to workers will be adequately identified to eliminate the possibility of drinking from a co-worker's container or bottle.