Heat Illness Prevention Training
Heat Illness Prevention Training

This Heat Illness Prevention training is required for all Supervisors and Employees working at all outdoor locations.
This training covers the requirements included in:

- California Code of Regulations; Title 8, Section 3395 Heat Illness Prevention
- UC Davis Policy and Procedure 290-52
- UC Davis Heat Illness Procedures Manual
- EH&S Safety Net #123
1. Heat Illness and the UC Davis prevention procedures
2. Environmental and Personal risk factors
3. Water consumption
4. Acclimatization
5. Shade
6. Heat illness types, signs and symptoms
7. First Aid for Heat Illness
8. Heat illness reporting requirements
9. UC Davis’s response for responding to symptoms of heat illness
10. UC Davis’s emergency medical service contact procedures
11. Heat illness prevention review
What is Heat Illness?

“Heat illness”

• Is a serious medical condition resulting from the body’s inability to cope with a particular heat load
• It includes heat rash, cramps, heat exhaustion, heat syncope (temporary loss of consciousness and posture), and heat stroke
UC Davis Heat Illness Prevention Procedures

- Plan: The UC Davis written heat illness prevention plan is available on the Safety Services Website: http://safetyservices.ucdavis.edu/ps/ghs/hi/heatIllness_Information

- Training: Heat illness prevention training will be provided to all employees and Supervisors working in outdoor places of employment.

- Water: Enough fresh water will be provided so that each employee can drink at least 4 cups per hour (1 quart per hour) especially if sweating more than usual. Employees are encouraged to consume water on a frequent basis in order to stay hydrated.

- Shade: Access to shade for at least 5 minutes of rest will be provided when an employee believes he or she needs a recovery period. Employees should not wait until they feel sick to do so.
• Assure a written copy of the UC Davis Heat Illness Prevention Manual is available at the worksite available to employees and representatives of Cal/OSHA. The plan should be in both English and the language understood by the majority of the employees.

• Water must be “fresh, pure, suitably cool” and located as close as practicable to where employees are working, with exceptions when employers can demonstrate infeasibility.

• Shade must be present at 80 degrees, instead of 85, and accommodate all employees on recovery or rest periods, and those taking onsite meal periods.

• Employees taking a “preventative cool-down rest” must be monitored for symptoms of heat illness, encouraged to remain in the shade and not ordered back to work until symptoms are gone. Employees with symptoms must be provided appropriate first aid or emergency response.
• High-heat procedures (95 degrees) shall ensure “effective” observation and monitoring, including a mandatory buddy system and regular communication with employees working by themselves. During high-heat, employees must be provided with a minimum 10-minute cool-down period every two hours.

• Emergency response procedures include effective communication, response to signs and symptoms of heat illness and procedures for contacting emergency responders to help stricken workers.

• Acclimation procedures including close observation of all employees during a heat-wave, defined as at least 80 degrees. New employees must be closely observed for their first two weeks on the job.

Environmental Risk Factors

- Environmental risk factors for heat illness include:
  - Type and duration of work tasks (i.e. welding/cutting)
  - Conductive heat sources from the ground or air movement
  - Heat load caused by:
    - Physical exertion - both severity and duration
    - Protective/impermeable clothing
    - Personnel protective equipment worn on the job
  - Temperature and relative humidity impacts (heat index)
    - Supervisors must monitor the weather (*see Attachment B - Heat Illness Prevention plan*) checking for the heat index impacts
Heart Index Impacts: As humidity and temperature increase, the heat index and risk of heat-related illness increases.
Personal Risk Factors

• Personal risk factors for heat illness include:
  – An individual’s age,
  – Lack of acclimatization or dehydration,
  – Health: Obesity and being de-conditioned are key!
  – Water, caffeine or alcohol consumption,
  – Pregnancy, diabetes, skin or sweat gland disorders
  – Dehydration causes (i.e. diarrhea)
  – Blood pressure or cardiovascular problems
  – Use of certain prescription medications
  – Missed meals

• All affect the body’s water retention or other physiological responses to heat
Water Consumption

• Frequent consumption of small quantities of water is required

• Water consumed at 4 cups per hour (1 quart per hour) is necessary when the work environment is hot and an employee is sweating more than usual doing the job

• The UC Davis Heat Illness Prevention Plan includes guidelines for the supply of water

• Supervisors shall remind employees to drink frequently
Acclimatization

• Acclimatization is the body’s temporary adaptation to heat which occurs gradually when a person is working and exposed to heat.

• Acclimatization peaks in most people within four to fourteen days of regular work of about two hours per day in the heat (see attachment A: UC Davis Heat Illness Prevention Procedures Manual).

• When ambient temperatures rise to levels higher than employees are accustomed, supervisors must take action by monitoring weather conditions and adjusting work schedules.
Shade

• Employees shall have access to shaded or air conditioned areas to prevent or recover from heat illness symptoms and where they can take their rest breaks.

• Employees shall be allowed a recovery period.

• Canopies, roofs, and some temporary structures or devices can provide shade.

• Sun blockage is sufficient 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 (i.e. a car sitting in the sun does not provide acceptable shade to a person inside it).
Types of Heat Illness
Signs & Symptoms

- Heat Rash
- Heat Cramps
- Heat Exhaustion
- Heat Syncope
- Heat Stroke
Heat Rash
Common Signs & Symptoms

- Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age but is more common in young children.

- Heat rash looks like a red cluster of pimples or small blisters.

- Heat rash is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.
Heat Cramps
Common Signs & Symptoms

• Heat cramps are muscle contractions, usually in the legs. These contractions are forceful and painful.

• These cramps seem connected to heat, dehydration, and poor conditioning, rather than to lack of salt or other mineral imbalances. They usually improve with rest, drinking water, and a cool environment.
Heat Exhaustion
Common Signs & Symptoms

- Heat exhaustion is a milder form of heat-related illness.

- It can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids.

- Those prone to heat exhaustion include people with high blood pressure and people working in a hot environment.
Symptoms of heat exhaustion may include:
- Nausea
- Heavy sweating
- Paleness
- Muscle cramps and aches
- Tiredness or Fatigue
- Weakness
- Dizziness or headache
- Nausea or vomiting
- Fainting
Heat Exhaustion
Common Signs & Symptoms

• Warning signs of heat exhaustion include:
  – The skin may be cool and moist
  – Victim's pulse rate will be fast and weak
  – Breathing will be fast and shallow.

• If heat exhaustion is untreated, it may progress to heat stroke
Heat Exhaustion
First Aid

- Some effective cooling measures include:
  - Administering cool, non-alcoholic beverages
  - Allowing employee rest periods
  - Providing a cool shower or sponge bath
  - Moving employees to an air-conditioned environment
  - Employees changing to lightweight clothing

- Seek medical attention immediately if:
  - symptoms are severe, or
  - the victim has heart problems or high blood pressure.
  - Otherwise, help the victim to cool off, and seek medical attention if symptoms worsen or last longer than 1 hour
Heat Syncope
Common Signs & Symptoms

• Symptoms that could lead to heat syncope (fainting) include:
  – Feeling faint or lightheaded
  – Pale, cool, and moist skin
  – Lightheadedness when you change position, such as moving from a lying position to a standing position

• Heat syncope can be caused by blood pooling in the legs if you have been standing still for a long time in a hot environment

• It can also be caused by vigorous physical activity for two or more hours before the fainting happens.
Your risk of developing heat syncope increases when you have not adjusted (acclimated) to a hot environment.

Being dehydrated may also increase your risk for heat syncope.

Recovery is rapid once you lie down in a cool environment.

Heat syncope is sometimes a symptom of a nervous system, metabolic, or cardiovascular problem needing further medical evaluation.
Heat Stroke
Common signs & symptoms

• Symptoms of heat stroke
  – Sometimes mimic those of heart attack
  – Sometimes a person experiences symptoms of heat exhaustion before heat strokes.
Common symptoms and signs of heat stroke* include:

- High body temperature
- The absence of sweating, with hot red or flushed dry skin
- Rapid pulse or difficulty breathing
- Strange behavior or hallucinations
- Confusion, agitation, or disorientation, seizure or coma
- Pinpoint pupils

*NOTE: Some individuals can develop symptoms of heat stroke suddenly and rapidly without warning and different people may have different symptoms and signs of heat stroke.
**Heat Stroke**

**First Aid**

- Victims of heat stroke must receive immediate medical treatment (call 911 or the nearest medical center) to avoid permanent organ damage, death or permanent disability, and a possibly life-threatening emergency.

- While calling or waiting for medical treatment, first and foremost, cool the victim:
  - Get the victim to a shady area and remove clothing
  - Apply cool water to the skin (for example you may spray the victim with cool water from a garden hose)
  - Fan the victim to promote sweating and evaporation
  - Place ice packs under armpits and in the groin
  - Monitor body temperature with a thermometer and continue cooling efforts until the body temperature drops to 101-102°F.
Reporting of Heat Illness

- Any employee who recognizes symptoms or signs of heat illness in themselves or in co-workers should **immediately** report this condition to their supervisor.

- If the condition appears to be severe or the employee does not recover, then emergency medical care is needed.
Emergency Response Procedures

• In the event of a serious heat related injury, notify emergency medical services immediately. If their arrival is delayed, they can give you further instructions for treatment of the victim.
  – If medical transportation is not available, transport the employee to the nearest hospital or urgent care center
  – Have location maps and be ready to provide emergency response personnel with directions to work location

• At remote locations supervisors must establish written emergency procedures specific to their work-site

See Attachment E & F of the Heat Illness Prevention plan for more information.
Heat Illness Prevention
General Protection Review

• Drinking water in the quantity of 1 quart per hour shall be available at all times for each employee for the duration of the entire shift while working outdoors in the heat.

• Supervisors shall remind employees to drink frequently (see Attachment C – Heat Illness Prevention plan) and this topic will be addressed at safety huddle meetings.

• Employees shall be allowed a recovery period and have access to shaded or air conditioned areas to prevent or recover from heat illness symptoms and where they can take their rest breaks (see Attachment D – Heat Illness Prevention plan).

• Supervisors must monitor the weather (see Attachment B- Heat Illness Prevention plan) checking for the heat index impacts of projected temperatures, and humidity before work shifts.
Heat Illness Prevention
General Protection Review (cont.)

• Supervisors must recognize the importance of employees taking rest breaks. This can be shall be addressed at field ‘safety huddle’ also called “tool-box” talk meetings.

• In the event an employee feels discomfort from the heat, supervisors will accommodate a recovery period to allow the employee to cool down and prevent the onset of heat illness.

• At remote locations supervisors must establish written emergency procedures specific to their work-site (see Attachment E – Heat Illness Prevention plan). These include: location and directions to the nearest medical care facility, directions to the work site, access to employee transport vehicles, and means of communication to emergency medical services.
Questions?

• Contact Safety Services:
  – EH&S: 530-752-1493
  – healthandsafety@ucdavis.edu