



# Heat Illness Prevention

Working in hot environments can result in heat illness, which left untreated can rapidly lead to serious health-threatening situations.

To prevent heat illness, SU personnel including but not limited to field researchers and grounds/ facility maintenance staff are to:

- Understand the environmental and personal risk factors for heat illness
- Take the necessary steps for preventing heat illness
- Be able to recognize the early signs/ symptoms of heat illness
- Know the University’s established emergency response procedures for heat illness

By implementing the safety measures covered in this document, supervisors will be able to prevent heat illness amongst their staff while also ensuring compliance with Cal/OSHA’s regulatory requirements for Heat Illness Prevention (Title 8 CCR 3395).

## Environmental Risk Factors

The main environmental risk factors for heat illness are:

- Air temperature
- Relative humidity
- Radiant heat (e.g. from the sun)
- Conductive heat (e.g., from the ground)
- Air movement (beneficial when < 95°F, detrimental when > 95°F)
- Work intensity/ duration
- Clothing worn

The Heat Index (HI) Table below offers general guidance on weather conditions that pose an elevated risk for heat illness.

		Temperature (°F)															
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
Relative Humidity (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
	60	82	84	88	91	95	100	105	110	116	123	129	137				
	65	82	85	89	93	98	103	108	114	121	128	136					
	70	83	86	90	95	100	105	112	119	126	134						
	75	84	88	92	97	103	109	116	124	132							
	80	84	89	94	100	106	113	121	129								
	85	85	90	96	102	110	117	126	135								
	90	86	91	98	105	113	122	131									
	95	86	93	100	108	117	127										
100	87	95	103	112	121	132											

- Caution – Fatigue possible with prolonged exposure and/or physical activity.
- Extreme Caution – Heat stroke, heat exhaustion, and heat cramps possible with prolonged exposure and/or physical activity.
- Danger – Heat stroke, heat exhaustion, or heat cramps likely; heat stroke possible with prolonged exposure and/or physical activity.
- Extreme Danger – Heat stroke highly likely with continued exposure.

Adapted from: National Oceanic and Atmospheric Administration (2005), *National Weather Service Heat Index*

**CAUTION:** When working under the sun or wearing heavier clothing (eg. protective overalls), heat illness risks are likely at lower Heat Index levels than indicated above.

## Pg. 2—Heat Illness Prevention

### Personal Risk Factors

The main personal risk factors for heat illness are:

- Age
- Degree of acclimatization
- Medical conditions\*
- Water consumption
- Alcohol consumption
- Caffeine consumption
- Use of prescription medicines\*

\* *Recommend consulting with personal physician to check if condition(s) may increase risk for heat illness.*

### Preventing Heat Illness

Supervisors are responsible for ensuring that the below measures are taken to prevent heat illness, as required by Cal/OSHA.

- 1) **Heat Illness Prevention Training**  
Personnel assigned to work in hot environments shall be provided heat illness safety training covering the information provided in this document. The training shall be documented per the SU Injury and Illness Prevention Program requirements. Contact EH&S at x3-0448 for additional training assistance.
- 2) **Access to Drinking Water**  
A sufficient quantity of drinking water shall be readily accessible to allow every working person to drink at least 4 cups per hour. Personnel should be encouraged to maintain regular fluid intake.
- 3) **Access to Shade**  
Personnel shall be provided access to a shaded rest area either open to the air or provided with ventilation. Where possible, work in the shade or wear wide-brimmed hats and loose-fitting, light-colored clothing.
- 4) **Work Planning**
  - a) **Assess conditions--** Prior to conducting outdoor work during warm periods, check weather forecasts and the Heat Index Table (on Pg. 1) to assess the potential for heat stress/ illness. Although no minimum safe temperature has been established, Cal/OSHA recommends that as temperatures approach 80°F, measures to prevent heat illness should be taken.
  - b) **Worker acclimatization—** The body needs a certain period of time to adjust to working in heat and humidity, especially when heavy physical exertion is required. Typically, people can adapt to significant increases in heat within 4 – 14 days of a progressively increasing workload. *NOTE: Acclimatization is especially important for those returning to work after a prolonged absence or recent illness, or for those recently moving from a cooler climate.*
  - c) **General safe practices for working in heat—**
    - Schedule outdoor work during cooler parts of the day
    - Remind staff of frequent water/ rest breaks
    - For strenuous work tasks, plan a staff rotation
    - Establish a buddy system so that workers and supervisors can monitor each other

### Signs/ Symptoms of Heat Illness

Early signs/ symptoms of heat illness include headache, muscle cramps, and unusual fatigue. Progression to serious illness such as heat exhaustion and heat stroke can be rapid, and is indicated by symptoms including unusual behavior, nausea/ vomiting, weakness, rapid pulse, excessive sweating or hot dry skin, seizures, and fainting. **Any of these symptoms require immediate medical attention.**

### Emergency Procedures

If first aid trained personnel are not immediately available to make an assessment, immediately call 9-911 (or 911 from off-campus). While waiting for emergency help:

- Get victim to a cool environment
- Loosen or remove excess clothing
- Provide cool drinking water if person is conscious and not nauseous
- Fan and mist the person with water

**IMPORTANT:** Anyone with symptoms of heat illness should never be sent home or left unattended without medical evaluation.

*Contact SU EH&S at x3-0448 for further information on heat illness prevention*