

May 2012

Avoiding
Heat-Related
Illness and Injury

Poster of the Month

Stay One Step
Ahead of the
Heat this Summer



Don't let the heat spoil your summer. This month's poster provides a simple checklist of actions

that can help you avoid situations at home or at work that can lead to heat illness and injury. By staying informed and aware, you and your family can enjoy summer safely.

[Download Poster](#)

Links and Resources

[Beat the Heat: Indoor Climate Control Tips From UCLA](#)

[Heat Illness Prevention Information from UC ANR](#)

[Extreme Heat Self-Help Measures from the CDC](#)

[Learn About Heat Index from the NOAA](#)

[CalOSHA Heat Illness and Injury Prevention eTools](#)

[Indoor Heat Illness Prevention from CalOSHA](#)

[Recreational Water Safety Tips from the CDC](#)

[Video - Never Leave a Child Alone in a Car](#)



UC Safety Spotlight

A UC System-Wide Publication of the Environment, Health & Safety Leadership Council

How to Stay

COOL COMFORTABLE & SAFE

When the Heat is On

What Heat Can Do

Heat Injuries can be serious, even fatal

Heat, especially when coupled with sun or humidity, can cause serious, even fatal, damage to our bodies. Employees working in hot indoors or outdoors environments live with the risk of heat injury. So do athletes, 'weekend warriors' in their backyards, people enjoying outdoor recreation—in fact, almost everyone has the potential to be injured by heat.

The physical effects vary based on the level of heat exposure and the individual's physical response. In its early stages, heat injury can cause alarm and discomfort that are fortunately temporary. In more serious cases, heat exposure can cause our bodies to overheat, damaging the nervous system and internal organs, sometimes with permanent effects. In its severest form, heat injury can be fatal.

Far too many preventable heat-related injuries occur in workplaces each year in the United States. The University of California is committed to preventing heat injury through education, training and procedures that protect employees in all types of work environments.

Following safety procedures is the key

How to Stay Safe

Injuries caused by heat are almost always preventable. The key is understanding the risk, knowing how to avoid it, and how to react if heat injury is observed in a co-worker, family member, or ourselves.

The first step is to recognize how quickly heat injury can get a foothold and how serious the effects can be without immediate first aid. Educational resources are available for families, through local health departments, healthcare providers and community agencies. In UC workplaces, user-friendly resources are available to help supervisors and employees work together to prevent tragic heat-related illnesses and injuries.

In the workplace, education is the foundation of effective prevention, helping employees understand their on-the-job heat risks. Prevention programs bring clarity and direction, outlining specific measures that offset the risks. Training helps make proper preventative actions second-nature. Ongoing, open communication within each working team helps ensure that potential issues are identified and addressed.

This issue of Safety Spotlight focuses on specific steps you can take to avoid heat-related injury. Work with your supervisor and co-workers to develop, update and follow heat illness and injury safety procedures. At home, work with your family and community to learn about and prevent heat-related injury.

Does the Day Feel Hotter than You Expected? Humidity May be to Blame.

High humidity can make hot days feel even hotter. According to the National Oceanic and Atmospheric Administration (NOAA), the combined effects of temperature and humidity can be expressed in terms of a Heat Index (HI) or apparent temperature.

The HI, which is given as a degrees Fahrenheit number, reflects how people actually feel the air temperature.

Knowing the heat index value for the day ahead can help you plan for appropriate heat protection, such as staying indoors or in the shade, taking more breaks, drinking water and other injury-prevention measures.

Use the chart below by first locating the air temperature at the top. Find the humidity value along the left side of the chart. Where the column and row intersect, you will find the heat index number. This information can help you better protect yourself and your family from heat injury.

Education, Understanding, Teamwork Enable Successful Research in One of the State's Most Extreme Climates

Consistent safety practices and proactive communication help UC staff and visiting students stay safe and productive in their challenging desert environment.



Fernando Miramontes, Superintendent at the UC Desert Research and Extension Center

DATELINE: EL CENTRO, CA... Few UC facilities experience as much intense heat and humidity as UC Agriculture and Natural Resources (UCANR) Desert Research & Extension Center staff face on a daily basis as they conduct their agricultural research in this hot, low desert area.

"The temperature routinely reaches over 100 degrees out here," says Fernando Miramontes, Superintendent at the UC Desert Research and Extension Center. "This is an unforgiving landscape. The heat can be life-threatening, so we consider heat injury prevention one of our highest priorities." The work environment for UC Employees at the Center is often a scorching 115 degrees and a humidity level of 80 percent. "The combination of heat and humidity increases the risk of heat injury, so we always take that ratio into consideration when we look at safe work practices," says Miramontes. Specialized procedures help ensure that employees are protected from heat injury:

- ◆ Increased supervision: "We keep an eagle eye on employees to be sure no one begins to show signs of heat stress," says Miramontes.
- ◆ Regular, 15-minute shade and rest breaks: Employees are permitted additional breaks at any time if they feel the need.
- ◆ Flexible schedules: Early-start, early-quit work schedules take advantage of cooler conditions early in the day.
- ◆ First Aid Preparation: All UC employees at the Center are certified in CPR and First Aid so they can spot heat injury and begin first aid.
- ◆ Communication: Daily safety huddle meetings before each work shift review the day's predicted weather and any other issues that could affect health and safety.
- ◆ "Water, water, water," says Miramontes: "We remind everyone to stay hydrated; drink often during the day even if you're not thirsty."
- ◆ Proper dress: Loose-fitting, lightweight, light-colored clothes keep employees cool.

Above all, three key concepts underlie the Center's safe work philosophy: Communication, training and consistent procedures. "Yes, we have good procedures in place," says Miramontes. "In this dangerous climate, strictly following those procedures is absolutely vital. We keep an open, two-way line of communication; employees know they can speak up if they are uncomfortable, need a break or observe someone else who might be getting into trouble. People check on each other, and no one is ashamed to say they need an extra break. We recognize the demands of the environment and we understand."

Located in the southern low desert area of California, the Desert Research & Extension Center (DREC) is a large and complex research center that provides professional management, land, labor and facilities for agricultural and environmental studies



and educational outreach activities. DREC is comprised of 250 acres which accommodates 50 research projects year round including research conducted in vegetable crop breeding and culture, irrigation management, soil salinity, improved varieties of grain and forage crops, emerging bio-energy crops, feedlot cattle studies, and control of various insects and pests. Researchers include those from University of California campuses, Cooperative Extension, USDA, and Industry. DREC is home to the FARM SMART agricultural education program which conducts over 150 programs and reaches approximately 7800 students annually.

NOAA's National Weather Service

Heat Index Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	118	110
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	126	130					
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										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution Extreme Caution Danger External Danger

Chart courtesy of NOAA at http://www.noaa.gov/features/02_monitoring/heatindex.html

The site hosts educational programs for young people year-round, so six UC staff members have specific training for child CPR and first aid. The young students are provided with a comfortable, 30' x 40' shade structure for instruction, rest and mealtimes. With the nearest emergency responders 15 minutes away, all employees are trained to respond immediately to heat injury, including pulling the person into the shade (or carrying shade to the person if the situation demands it) and starting CPR until help arrives. "We take our research work seriously," says Miramontes, "but we take our lives and health even more seriously. In this hot, humid area, we depend on training, talking and working together to make sure we all go home healthy at the end of the day."

Click [here](#) to learn more about UC ANR activities and safety procedures.

UC ANR's El Centro site uses portable structures (right) to keep workers comfortable during meals, breaks or any time someone needs to spend some time in the shade.



Think Heat Illness Can't Happen in an Office? Think Again!

Just because you work in an office, lab or other indoor environment doesn't mean heat-related illness can't happen to you. Equipment operation and work processes can generate heat. Hot weather can penetrate indoors, and the sun shining on a building's windows can further increase the temperature. Processes that produce water or steam can cause the humidity indoors to rise, making it seem even hotter.



Performing a Job Safety Analysis will identify possible heat-related risks associated with your work tasks and help you develop preventive measures to offset those risks.

Engineering controls such as air conditioning and increased ventilation also help make the environment safer and more comfortable. Heat-related prevention measures include:

- Reflective window coating or sun shades
- Heat shields and/or insulation for hot surfaces
- Eliminating steam leaks and keeping surfaces dry
- Using required Personal Protective Equipment (PPE) for work tasks that involve high heat
- Staying hydrated and taking frequent cool-down breaks

Work with your supervisor to develop work safety processes for your area to create a safe, comfortable and productive workplace.

Prevent Heat Illness and Injury at Work

Heat illness and injury prevention should be part of your department illness and injury prevention program and/or safe work processes. Work tasks with potential heat risks include welding, brazing and firefighting. Employees working outdoors can also face heat risks, including those who work in construction, groundskeeping, maintenance, agricultural and research positions. Work with your supervisor and co-workers to be sure your prevention measures include:

Periodic breaks for rest and shade



Engineering controls such as good ventilation and management of humidity and air temperature

Medical assessment for susceptibility to heat illness or injury

Complete safety training for all employees who could encounter heat risks in their work tasks

Having enough water (1 quart per hour) available and staying hydrated throughout the day

At Work and At Home:

Know the Signs, Act Quickly

Recognizing the symptoms of heat-related illness in yourself and others gives you the power to render help early and prevent serious harm. Heat-related illness progresses in stages. The first signs of trouble are usually heat-related muscle cramps; the next stage is heat exhaustion. Without treatment, heat exhaustion can progress to heat stroke, which is a life-threatening condition.

Heat Cramps

People working or playing hard can lose vital salt and moisture due to profuse sweating. The loss of salt causes muscle cramps. The solution is to stop the activity and gently stretch and massage the affected muscles. It is also important to rehydrate. Having the affected person drink cool (not ice-cold) water or a sports drink is also important,



but take it slowly. The person should slowly drink a half-glass of water every 15 minutes to avoid stomach cramps.

Heat Exhaustion

Heat exhaustion occurs when heat and/or activity overwhelms the body's cooling systems. If left untreated, heat exhaustion can rapidly develop into a more serious illness, heat stroke. In addition to muscle cramps, people experiencing heat exhaustion can have the following symptoms:

- Profuse sweating
- Extreme weakness or fatigue
- Dizziness, confusion
- Nausea
- Pale or flushed complexion
- Slightly elevated body temperature
- Clammy, moist skin
- Rapid, shallow breathing

First aid for heat exhaustion should be provided immediately. The affected person should be moved to a cool, shady area if outdoors, or to an air conditioned building if possible. Taking a cool bath or shower will bring relief, or if outdoors, the clothing and skin can be sprinkled or sponged with water; fanning the person will also help cool them down. He or she should rest and slowly drink cool water or a sports beverage. Be sure there is no caffeine or alcohol in the beverage. If the person refuses water, vomits or loses consciousness, call 9-1-1.



Heat Stroke

Heat stroke can be fatal or cause permanent disability. A person suffering from heat stroke can become disoriented and confused or may lose consciousness. Their body temperature can quickly rise to as high as 106 degrees. In addition, these symptoms indicate heat stroke:

- Vomiting and/or rapid, weak pulse
- High body temperature
- Confusion, hallucinations
- Skin that is dry, red and hot

In cases of heat stroke, immediately call 9-1-1. Follow the cooling measures as you would for heat exhaustion, but focus on cooling the body very quickly. Wrap wet sheets around the person and fan him or her. Place ice packs or cold packs on the neck, wrists and ankles. Have the affected person rest lying down until help arrives. [Click here](#) for heat stress prevention information from CalOSHA.

Don't Let Hot Summer Weather Keep You From Working Out



- Take an easier, more moderate approach
- Break your workout into shorter segments with rest periods in-between
- Drink plenty of cool water or sports drinks
- Work out during the cooler early morning and evening hours
- On extremely hot days, work out indoors in a cool or air-conditioned environment
- Stretch thoroughly before your workout to prevent cramps, and cool down slowly afterwards
- Wear loose, light colored clothing that wicks perspiration away and allows air to circulate
- Use sunscreen to protect yourself from sunburn
- Check with your doctor before starting hot-weather workouts if you have any health issues or are taking prescription or over-the-counter medication
- Learn more about heat stress and how to prevent it at the [National Institutes of Health \(NIH\) website](#)



Avoiding Heat-Related Illness at Home

With the approach of warmer weather and longer days, we spend more time outdoors. We're inspired to exercise more, enjoy outdoor recreation and tackle those do-it-yourself projects we put off all winter. Summer can also be a dangerous time if we don't take steps to avoid heat-related illness.

Monitor active children for signs of heat stress

Drink plenty of cool water; avoid sugary or alcoholic drinks

During a heat wave, stay in air conditioned areas during the day

Know the symptoms of heat illness and take immediate action if you see the signs in yourself or others

Plan activities for early in the day or in cooler evening hours



Parked Cars are Heat Traps



Never, never, never leave a child or any other person in an unattended car, or allow children to play around unlocked parked vehicles. Fatalities happen quickly because young children cannot get out of the car themselves and their bodies are not able to compensate for the rapidly rising temperatures. It is illegal in California to leave a child unattended in a vehicle (refer to DMV section 15620). In as little as ten minutes, the temperature inside a car parked in the sun can reach up to 170 degrees. Even if the windows are partially rolled down, the car is parked in the shade or on mild, 60 degree days, the car can heat up quickly enough to cause hyperthermia in a child. Death can take place in as little as 40 minutes. These cautions also apply to adults who are unable to exit the car, such as the elderly or those with disabilities.

Sadly, statistics show that this kind of childhood fatality is on the rise in the United States. The need for children to ride in the back seat can make it easier to overlook a sleeping youngster. Caregiver actions that lead to these tragic outcomes include:

- Intentionally leaving a child in the vehicle while running an errand
- Forgetting that the child is in the car
- Thinking the other parent took the child out of the car seat and brought him or her into the house
- Children playing in a parked car close the doors or the trunk and can't get back out

These safety habits will help to keep the young people in your life safe:

- Keep a large stuffed animal in the child's car seat. When the child is in the seat, place the toy in the front seat. The toy is a big, colorful reminder that your child is in the car.
- Leave your purse, backpack or other necessity near the child so you are forced to look in the back seat when you park your vehicle.
- Set your cell phone alarm to coincide with your expected arrival time, reminding you to check the car seat.
- Use a parent "buddy system;" set up a routine of calling each other at the same time every day to confirm that one of you left your child at day care.
- Lock cars when not in use so children cannot play in them and become trapped.
- If you see a child left alone in a closed car, call 9-1-1 immediately.
- [Click here](#) to access helpful information from Consumer Reports.

Boating and Water Safety

Before you take off for boating, swimming or fishing this summer, take precautions to keep yourself and your family safe. Review navigation "rules of the road" and boating laws, including life vest requirements for children under the age of 13.



Monitor small children carefully around all bodies of water including pools, spas, bins, coolers and other containers. Small children can drown in only a few inches of water. [Click here](#) to learn more about boating and water safety.

Don't Forget Pets

Animals can also become overheated when active on a hot, sunny day. California state law prohibits leaving your pet in an unattended car on hot days (CA Penal Code 597.7). [Click here](#) for more on how to protect animals from heat, and visit the American Society for the Prevention of Cruelty to Animals ([ASPCA](#)) for additional advice on animal safety.



Careless Chris

Careless Chris has a Narrow Escape with Heat...an Imaginary Scenario



The Saturday at the county fair started out as a happy one for fictitious employee Careless Chris. She enjoyed spending time with her friends and their children, and had a few drinks with her lunch. Disorientation set in, however, when later that afternoon she confronted an endless sea of cars in the parking area. The sun was hot and the temperature was soaring as she looked for her car. [Read the story](#)

Feedback, Please

Send an email to safetyspotlight@ucdavis.edu to submit your comments on the May 2012 issue or to suggest content ideas for future issues. We look forward to hearing from you!

COMING SOON!

Back Health and Body Mechanics



Check out our June/July issue to learn how improper posture, reaching and lifting can harm you, and how to prevent these kinds of injuries in your workplace.

connect

Know where to turn on your UC campus for the information you need to keep yourself, your workplace and your environment safe and secure. Click on the campus links below to connect to local program, educational and informational resources.

UC Berkeley

UC Riverside

UCOP

UC Davis

UC San Diego

UC ANR

UC Irvine

UCSF

UCLA

UC Santa Barbara

UC Merced

UC Santa Cruz

safety strategies

Heat Illness Prevention Resources

The California Division of Occupational Safety and Health (CalOSHA) offers easy-to-use online resources to help supervisors and employees alike incorporate heat illness prevention into their everyday work practices. Work with your supervisor and/or safety coordinator to be sure your department's safe work practices are in line with CalOSHA requirements. Click on the Safety Spotlight flier (near right) to read more about water and shade requirements for employees. Visit CalOSHA's 99calor.org/english.html site to access downloadable safety information in Spanish, Hmong, Punjabi and English (Spanish version shown at far right).



RISK SUMMIT 2012

University of California Office of the President
Oakland, California • June 6 - 8 • Marriott Oakland City Center

Annual UC Risk Summit • June 6-8, 2012 • Oakland, California

The annual UC Risk Summit is being held this year at the Marriott Oakland City Center, June 6-8, 2012. Sponsored by the Office of Risk Services, this conference provides opportunities to share perspectives, best practices, challenges and solutions that you can use to improve efficiency in your workplace and better manage risk. Risk Summit provides a forum to build synergistic connections with your UC colleagues and others.

“During the Risk Summit, representatives from UC campuses, medical centers and other facilities share information and ideas” says Grace Crickette, Chief Risk Officer. “It is an opportunity to exchange ideas and issues, and to build a knowledge base that incorporates staff expertise throughout the system.”

For more information or to register, visit <http://www.ucop.edu/riskmgmt/summit.html>