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Safety

Newsletter

COUNTY OF RIVERSIDE
HUMAN RESOURCES SAFETY DIVISION

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HEAT ILLNESS AWARENESS



HEAT ILLNESS AWARENESS



According to the Centers for Disease Control and Prevention (CDC), on average, extreme heat causes 658 deaths in the U.S. each year. This is more than those in tornadoes, hurricanes, floods and lightning combined. Sadly, many, if not all, of these deaths are preventable. Occupational Safety and Health Administration (OSHA) reported 2,630 heat illnesses in 2014. These included all conditions related to overheating, such as rhabdomyolysis, heat cramps, heat exhaustion and heat stroke.

In a study released by the CDC in 2013, researchers found 7,233 heat-related deaths in the U.S. between 1999 and 2009. This data also

indicates the numbers are rising. In a two-week period in 2012, excessive heat resulted in 32 deaths over four states in the U.S. This is four times the typical average for those same states for the same two-week period between 1999 and 2009.

Just under 70 percent of deaths happen at home and 91 percent of those homes did not have air conditioning. Most of the people who died were either unmarried or living alone.

Factors Affecting Your Potential Risk for Heat Stress

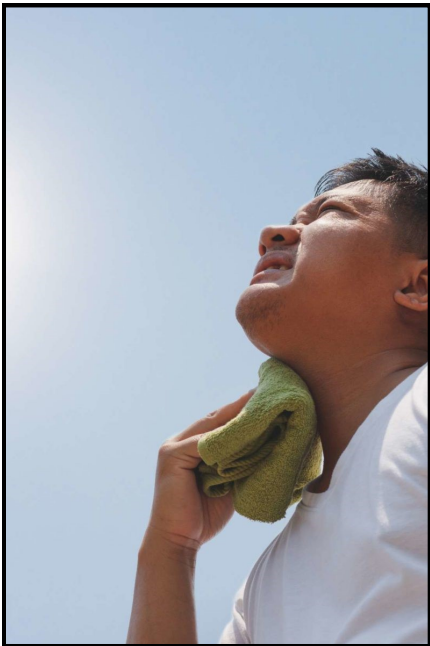
Factors that affect your risk for suffering heat stress include your environment, your work and rest schedules, and your nutrition and training schedules. You are most prone to suffering heat stress if you are elderly, have high blood pressure or work or exercise in a hot environment.⁵ You might think you can only suffer heat stress when temperatures outside are very warm, but the temperature only needs to be 57 degrees Fahrenheit (13.8 degrees Celsius) to suffer the effects of heat stress. Humidity is another environmental factor affecting your body's ability to evaporate sweat, and cool your core temperature. Days of high humidity reduce sweat evaporation, and therefore affect your body's cooling system. Wind speed will help evaporate sweat and cool your body.



Acclimating to extreme heat is important if you plan to spend time outside working. In this process, you physically adjust to the temperature in your outdoor environment. In a healthy person, this can take up to two weeks; a little faster in the heat and slower in the cold. Your physical condition, age and weight are all factors in how quickly you acclimate to your environment. However, this is effective only when you have access to cooling off in times of heat stress. You cannot acclimate to living in an apartment without air conditioning during high temperatures.

Age, medications and metabolic rate are also factors impacting your response to heat. As you age, your body's response to temperature change is reduced, causing higher risk in elderly individuals. Some medications may also interfere with your brain's temperature regulation. If your metabolic rate is high, you may feel warm at 72 degrees F (22.2 degrees C), whereas someone with a slow rate will feel cool. How often you rest in the heat, seek a cooler environment and schedule water breaks will also affect your response.

HEAT ILLNESS AWARENESS



Mild to Moderate Heat Stress

There are varying degrees of heat stress, starting with heat rash and culminating in heat stroke.⁸ You may have experienced heat rash or prickly heat in the past, which caused from heat and humidity and usually disappears quickly once you enter a cooler environment.

Clusters of red pimples or small blisters may appear on your neck, groin, and chest, or under your breasts or your armpits. You may use powders to keep the area dry and reduce the irritation, but ointments and creams may only exacerbate the discomfort.

Heat cramps are involuntary muscle contractions. In heavy working conditions and hot temperatures, your body can lose as much as 2 pints (1 liter) of fluid every hour.⁹ Replacing water is important, but so is replacing minerals and sodium. Nevertheless, typical sports drinks are not the solution.

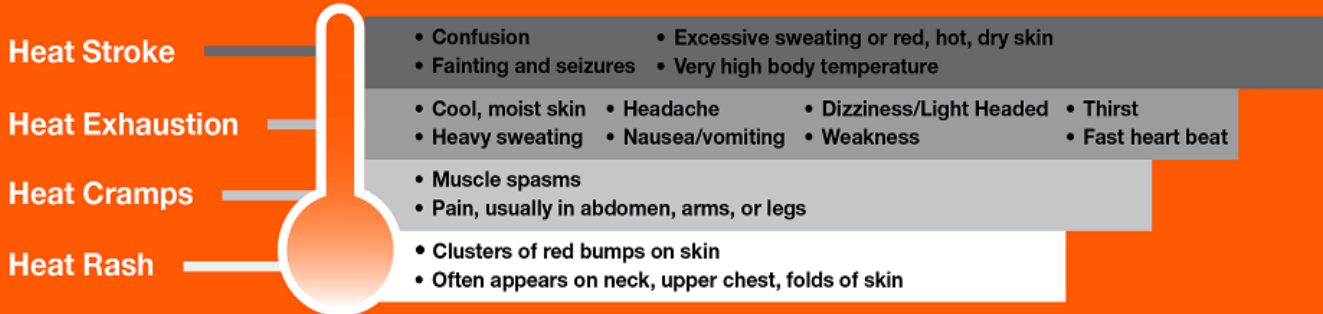
Rehydration with coconut water¹⁰ supplies your body with minerals, salts and energy without the disadvantages connected to sports drinks, which can contribute to tooth corrosion and high sugar levels spiking your insulin and increasing your potential risk for metabolic syndrome.

Heat syncope (fainting) or dizziness happens more frequently after prolonged periods of standing in one place in the heat.¹¹ Dehydration and lack of acclimatization contribute to the problem. You may have sweaty skin but will have a normal body temperature. Go to a cool area and drink to rehydrate.

Rhabdomyolysis is the medical term to describe a rapid breakdown, destruction and death of muscle tissue. This can happen in times of extreme heat, causing muscle cramps, weakness and exercise intolerance.¹²

The large amounts of proteins and electrolytes suddenly flooding your body from ruptured muscle cells can damage your kidneys, and trigger seizures and irregular heart rhythms. It is important to stop what you're

DIFFERENT HEAT ILLNESSES & SYMPTOMS



HEAT ILLNESS AWARENESS

Heat Stroke and Heat Exhaustion Are Different

Heat exhaustion is your body's response to a loss of large amounts of water and salt.¹³ Your symptoms may include:¹⁴

✓ Headache	✓ Nausea	✓ Dizziness
✓ Weakness	✓ Irritability	✓ Thirst
✓ Heavy sweating	✓ Elevated body temperature	✓ Decreased urine output
✓ Vomiting	✓ Diarrhea	✓ Clammy or pale skin

Immediate medical care is necessary to prevent the onset of heat stroke. If a clinic or emergency room is not immediately available, call your local emergency response phone number. Take the individual to a cool area, give them water to drink, remove unnecessary clothing and cool them with cold compresses.

Avoid drinking ice cold drinks in favor of cool liquids.¹⁵ Take a cool shower or get into a bathtub or swimming pool. Spritz cool water over bare skin, or soak your clothing in cool water. Do not cool yourself or someone else to the point of shivering.

Heat stroke is the most severe form of heat stress, causing dramatic changes in your cells that can potentially lead to death. Symptoms usually include:¹⁶

✓ Confusion (altered mental status)	✓ Loss of consciousness (coma)
✓ Hot, dry skin or profuse sweating	✓ Seizures
✓ Body temperature 104 degrees F (40 degrees C) or higher	✓ Death if treatment is delayed

Act Quickly If You Suspect Heat Stroke

Heat stroke is a medical emergency requiring immediate medical treatment. Give the same first aid you would for heat exhaustion while waiting for emergency personnel. Heat stroke causes specific changes in your cells, triggering large scale inflammation in your body that may result in death when left untreated.

When your core temperature rises too high (hyperthermia), it quickly triggers a response as your body tries to correct the temperature elevation.¹⁷ Your blood vessels on the surface of your skin dilate in an attempt to cool the blood and body. This results in red (flushed) or blue coloring to the skin.

To shunt more blood to the skin, the body constricts the blood supply to the gut. This reduces blood flow and increases the movement of bodily fluids between the cells, a structure designed to keep fluids and toxins in your gut from leaking into your abdominal cavity, usually a sterile environment.

HEAT ILLNESS AWARENESS

Act Quickly If You Suspect Heat Stroke cont.

The leaking that occurs is not the slow trickle of [leaky gut](#), but rather a sudden onslaught of toxins. In fighting the massive amount of toxins, your body also damages other organs and tissues. According to an article in Scientific American, which quotes a chapter in the textbook, "Wilderness Medicine," it can be challenging to differentiate between damage from overheating and from the secondary effects of the toxins.¹⁹ As explained by Scientific American:

"Proteins in the spleen start to clump as a direct result of heat; they're essentially cooked. The blood-brain barrier that normally keeps pathogens out of the brain becomes more permeable, allowing dangerous substances into the brain ... and 30 percent of heat stroke survivors experience permanent damage in brain function, according to Wilderness Medicine."



Treat Heat Stress Early

Heat stress may move quickly from cramps to heat exhaustion and into heat stroke. It is important to be diligent and to evaluate your symptoms and the symptoms of the people around you. Early treatment and immediate help can prevent heat stroke and the resulting damage to organs, tissues and your brain.

If you are working in the heat daily and don't experience symptoms, it is prudent to weigh yourself nightly. You are flirting with danger if you lose between 1 percent and 1.5 percent of your body weight in a single day.²⁰

For a 170-pound person, 1 percent loss is 1.7 pounds and 1.5 percent is 2.5 pounds. You might not think such small numbers represent grave danger, but they do. Heat stress may make you feel tired, fatigued and irritable, and may cloud your thinking. This increases the likelihood of performance decay, leading to poor decisions or an increased risk of an accident.

Your goal is to find a balance between the conditions under which you are working or enjoying an athletic pursuit, the amount of rest in cooler environment you get and your fluid intake. Even in perfect balance, you must listen carefully to your body and know the symptoms of heat stress.

HEAT ILLNESS AWARENESS

Prevent or Lower Your Risk for Heat Stress

Preventing heat-related illness is easier than treating it. Be prepared to prevent heat stress or help those who are experiencing the condition.

◆ Know the Signs and Symptoms

When you know what to look for, you may be able to prevent muscle cramps from accelerating to heat exhaustion or heat stroke.

◆ Monitor Yourself and Your Companions

Be diligent about watching for the signs of heat stress and treat them immediately.

◆ Block a Direct Heat Source

Shield yourself from the sun, open flames in hot weather and light when you are suffering from heat stress. Use the shade as much as possible. You may want to build simple reflective surfaces to fit your windows to deflect sunlight in the summer.²¹ Wrap aluminum foil around cardboard cut to fit your window. Anchor it between window dressing and the window to deflect the sun and reduce the heat absorption in your home. You may want to use this in the rooms you sit in the most.

◆ Use Cooling Fans and Air Conditioners

While you may be able to acclimate to high temperatures outside, it is important to have cooling fans or air conditioning indoors where the air is not moving to aid in sweat evaporation.

◆ Check on Your Friends, Family and Acquaintances

During a heat wave, check on people you know who live alone, don't have air conditioning or suffer from a medical condition which increases the potential for heat-related illness. Help them find shelters where they will be safe. Create a communication plan with people you know may need help in the heat. Identify when you will call and what will happen if they don't answer.²²

◆ Drink at Least 8 Ounces of Water or Coconut Water Every 15 Minutes

You will want to replace the fluid lost from sweat in the heat, supporting your body's cooling mechanism to prevent heat stress.

HEAT ILLNESS AWARENESS

◆ **Avoid Caffeinated Drinks, Alcohol and Heavy Meals**²³

Alcohol and caffeinated drinks stress your kidneys under hot conditions, increasing the potential for heat stress. To stay cool, your body will dilate capillaries close to the skin and shunt some blood from your gut, slowing digestion. Eating a heavy meal without adequate blood supply for digestion will be uncomfortable and may trigger nausea.

◆ **Wear Lightweight Loose-Fitting Clothing**

This allows your sweat to evaporate and cool your body more efficiently. It's also important to leave your sweat on your skin and not wipe it off.²⁴ Your sweat is the core of your body's cooling system. By wiping it off, you don't allow the body to cool as efficiently.

◆ **Take the Time to Acclimatize Yourself**

Spend time intentionally getting used to the hot weather before attempting to participate in athletic activities or working outside. It can take up to two weeks to get used to changes in weather. Learn to listen to your body signals during this time and drink plenty of fluids.

◆ **Rest Frequently**

Muscle activity increases the production of internal heat. This in turn increases your body core temperature and your risk of heat stress. Rest for at least 15 minutes every hour to allow your core temperature to stabilize.²⁵

◆ **Turn Off the Lights**

Lights and digital equipment emit heat as they function. When the room is already hot, even additional lighting or computers can raise the temperature enough to trigger heat stress.²⁶

◆ **Track the Local Weather**

Knowing when the heat is expected to rise will help you to plan outdoor activities, fluid requirements and when to activate your communication plan with friends and family.

◆ **Eat Appropriately for the Weather**

It's important you continue to eat during a heat wave when you aren't actively working or participating in athletic activities.²⁷ Small, frequent meals are more easily digested rather than two or three large meals a day.

◆ **Do Not Leave Children or Pets in the Car**

The temperature inside your car can quickly rise to 120 degrees F (48.8 degrees C) or higher. Hot enough to kill someone quickly.

HEAT-RELATED ILLNESSES

WHAT TO LOOK FOR

WHAT TO DO

HEAT STROKE

- High body temperature (103°F or higher)
 - Hot, red, dry, or damp skin
 - Fast, strong pulse
 - Headache
 - Dizziness
 - Nausea
 - Confusion
 - Losing consciousness (passing out)
- Call 911 right away-heat stroke is a medical emergency
 - Move the person to a cooler place
 - Help lower the person's temperature with cool cloths or a cool bath
 - Do not give the person anything to drink

HEAT EXHAUSTION

- Heavy sweating
 - Cold, pale, and clammy skin
 - Fast, weak pulse
 - Nausea or vomiting
 - Muscle cramps
 - Tiredness or weakness
 - Dizziness
 - Headache
 - Fainting (passing out)
- Move to a cool place
 - Loosen your clothes
 - Put cool, wet cloths on your body or take a cool bath
 - Sip water
- Get medical help right away if:**
- You are throwing up
 - Your symptoms get worse
 - Your symptoms last longer than 1 hour

HEAT CRAMPS

- Heavy sweating during intense exercise
 - Muscle pain or spasms
- Stop physical activity and move to a cool place
 - Drink water or a sports drink
 - Wait for cramps to go away before you do any more physical activity
- Get medical help right away if:**
- Cramps last longer than 1 hour
 - You're on a low-sodium diet
 - You have heart problems

SUNBURN

- Painful, red, and warm skin
 - Blisters on the skin
- Stay out of the sun until your sunburn heals
 - Put cool cloths on sunburned areas or take a cool bath
 - Put moisturizing lotion on sunburned areas
 - Do not break blisters

HEAT RASH

- Red clusters of small blisters that look like pimples on the skin (usually on the neck, chest, groin, or in elbow creases)
- Stay in a cool, dry place
 - Keep the rash dry
 - Use powder (like baby powder) to soothe the rash



MOTORIZED CART SAFETY

Motorized carts are used by several Departments in the County and are a great tool for staff to utilize, but if not operated properly they can be dangerous. Serious injuries have occurred, so to help you stay safe the Safety Division offers a few tips to keep you injury free!

Stay on roads with
speed limits below
35 MPH



Do not block
exits / entrances



Use the bike lane
when driving on the
road.



**YIELD TO
PEDESTRIANS**

1. Always drive responsibly; arm's and legs should always remain in the vehicle and, if your cart is equipped with them, seat belts should always be fastened.

2. Only carry passengers that you have seats for. Do not try to squeeze in extra passengers.

3. Never drive recklessly or joy ride. Be courteous to other drivers and obey vehicle traffic laws and the rules of the road.

4. Never drive intoxicated or under the influence of any drug or narcotic.

5. Avoid distractions while operating your golf cart. No matter the size of the vehicle, it's still an automobile. Remain attentive and avoid talking, texting, or reading while driving, reaching for objects, applying makeup or eating.

6. Never allow anyone to stand in the vehicle or on the platform located in the back of the vehicle and never put the vehicle in motion until all passengers are safely inside the vehicle and buckled in.

7. Always use hand signals to indicate upcoming turns as well as your turn signals. Turn signals may be small or go unnoticed by vehicles behind you so it's always a good idea to use hand signals as well.

8. Always check blind spots before turning. When making a left hand turn, yield to the through traffic lane and merge into that lane before turning left.

9. Use caution while tuning and look behind your golf cart before backing up.

10. Avoid excessive speeds, sudden starts and stops, and avoid sharp turns at fast speeds.

11. Reduce speed depending on the driving conditions and driving environment. Reduce speed on hills and inclines or declines, blind corners, and yield to pedestrians.

12. Do not leave keys in golf cart while unattended and always make sure to set the parking brake.

13. Always yield to pedestrians.

MOTORIZED CART SAFETY

Consider taking 5 minutes to conduct a daily inspection of your assigned motorized cart. Catching minor defects, before they become dangerous, can help to keep you and the public safe and free of injury. Here's an example from the University of California at Irvine.

Daily Inspections

The motorized cart daily inspection is a quick **30-second** walk around of the cart to identify obvious issues.

Below you will find a daily checklist guide that will aid you in identifying issues prior to operating the cart. Daily inspections are key to accident prevention. Any observed issues should be immediately reported, documented, and corrected.

GENERAL EQUIPMENT

Are any of the following in good working condition?:	Yes	No	Corrective Actions:
1. Tires, Steering Wheel, Brakes, or Accelerator	<input type="checkbox"/>	<input type="checkbox"/>	If "no", notify your supervisor to initiate repairs & place the cart out of service .
2. Cart Frame (i.e. No loose parts or fluid leaks, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	If "no", notify your supervisor to initiate repairs & place the cart out of service .
3. Charge Mechanism (i.e. battery and charger)	<input type="checkbox"/>	<input type="checkbox"/>	If the battery is not working, notify your supervisor to initiate repairs & place the cart out of service . If the charger is not working, notify your supervisor to initiate repairs/replacement.
4. Does the cart have sufficient charge for the planned trip?	<input type="checkbox"/>	<input type="checkbox"/>	If "no", charge cart prior to use.
5. Does the cart have a label/number assigned?	<input type="checkbox"/>	<input type="checkbox"/>	If "no", notify your supervisor to email safety@uci.edu & request a cart label.
6. Does the cart label start with two letters ?	<input type="checkbox"/>	<input type="checkbox"/>	If "no", notify your supervisor to email safety@uci.edu & request a new cart label.

SAFETY EQUIPMENT

Are any of the following in good working condition?:	Yes	No	Not Equipped	Corrective Actions:
1. Turn Signals (LT & RT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", use hand signals for turns. For repairs, notify your supervisor.
2. Brake Lights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", use hand signals for brakes. For repairs, notify your supervisor.
3. Headlights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", do not operate cart if headlights are needed to view the road ahead (i.e. driving at night or before dawn). For repairs, notify your supervisor.
4. Emergency Lights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", park safely & do not obstruct pathways . For repairs, notify your supervisor.
5. Reverse Audible Signal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", use additional precaution when reversing. For repairs, notify your supervisor.
6. Strobe Lights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", use additional precaution when approaching pedestrians/vehicles. For repairs, notify your supervisor.
7. Horn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", use callouts and additional precaution when driving. For repairs, notify your supervisor.
8. Seat Belts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", use additional precaution when driving. For repairs, notify your supervisor.
9. Mirrors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If "no" or "not equipped", use additional precaution when driving. For repairs, notify your supervisor.