HEAT AND HYDRATION

The most common environmental factors that can contribute to a heat related illness are type of work, level of physical activity and duration, as well as clothing color, weight and breathability. The most common personal factors that can contribute to heat related illness are age, weight/fitness, drug/alcohol use, prior heat-related illness, and food consumption. Environmental, physical, and personal factors should be taken into consideration before assigning a task where there could be a possibility of a heat related illness.

OSHA regulates employee exposure to heat stress, primarily by enforcement of its General Duty Clause, and the expectation is that employers protect workers from excessive heat. This program provides information for supervisors to use in the prevention of heat-related illnesses, and the training plan is intended to instruct workers, before working in the heat, on the appropriate measures for avoiding heat stress and the procedures to follow when a co-worker exhibits potential symptoms. Heat stress prevention efforts include:

- Training
- The provision of water, rest, and shade during extremely hot conditions.
- Heat acclimation.
- Monitoring workers for signs of heat stress and symptoms of heat illness/injury.
- Planning for emergencies related to the effects heat illness/injury.

Dehydration

Dehydration can result from not drinking enough fluids, even in mild or cold weather or within a climate controlled environment. The exposure to dehydration increases with:

1. Illness symptoms that include diarrhea, vomiting and/or fever – prolonged symptoms, especially when severe, may warrant immediate medical attention, and a medical professional should be consulted whenever symptoms of any severity last more than twenty-four (24) hours.
2. Excessive sweating – work and exercise in hot and humid conditions always increases the risk of dehydration and heat illness/injury. Humidity interferes with the cooling effect of sweat evaporation. This may increase body temperature, and always increases the need for additional fluid consumption.
3. Increased urination – some fluids, such as caffeinated and alcoholic beverages, are counter-productive in that a dehydrating affect can occur as consumption is increased. Certain medications, such as diuretics and some blood pressure medications, can also lead to dehydration, because they increase urination.

Thirst is not always a reliable early indicator of the body's need for water. Dehydration symptoms vary with age and some older adults do not feel thirsty until already dehydrated. Typically, however, dehydrated adults may experience extreme thirst, less frequent urination and/or dark-colored urine, fatigue, dizziness, and/or confusion. Dehydration can lead to serious complications, including:

1. Heat injury/illness – failure to consume enough fluids during exercise or vigorous work activity that causes heavy perspiration could cause heat injury or illness ranging in severity from mild heat cramps to heat exhaustion or potentially a life-threatening heat stroke.
2. Urinary and kidney problems – prolonged or repeated bouts of dehydration can cause urinary tract infections, kidney stones and even kidney failure.
3. Seizures – electrolytes, such as potassium and sodium, help carry electrical signals from cell to cell. Dehydration can cause an electrolyte imbalance that mixes up the normal electrical signals and may lead to involuntary muscle contractions or even loss of consciousness.
4. Low blood volume shock (hypovolemic shock) – this is another dehydration complication that may be life-threatening and it occurs when low blood volume causes low blood pressure and a drop in the amount of oxygen in your body.

Drinking Water – Provide plenty of cool drinking water and disposable cups in convenient, visible locations close to the work area. Water should have a palatable (pleasant and odor-free) taste and water temperature should be 50°F to 60°F, if possible. Encourage workers to choose water over soda and other drinks containing caffeine and high sugar content. These drinks may lead to dehydration. Drinks with some flavoring added may be more palatable to workers and thereby improve hydration. Encourage workers to avoid drinking alcohol during hot weather events.

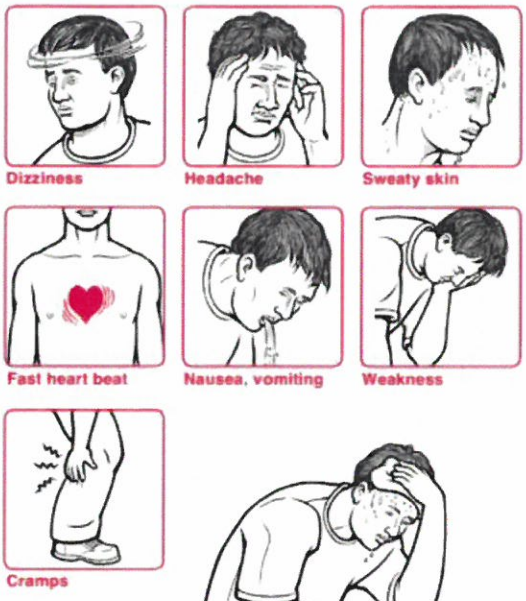
Actively encourage workers to drink small amounts of water often (before they become thirsty). They should drink about 4 cups of water every hour while the heat index is 103 to 115°F. Workers will need the greatest amount of water if they must work in direct sunshine, during peak exertion, and during the hottest part of the day. Under most circumstances extended hourly fluid intake should not exceed 6 cups per hour or 12 quarts per day. To maintain hydration, it may be necessary to reduce work rates, reschedule work for a time when the heat index is lower, or enforce work/rest schedules when work must continue during periods of extreme risk for heat-related illness.

First Aid – Mild to moderate dehydration can typically be corrected with additional fluid intake. However, at the first sign of heat exhaustion or heat stroke:

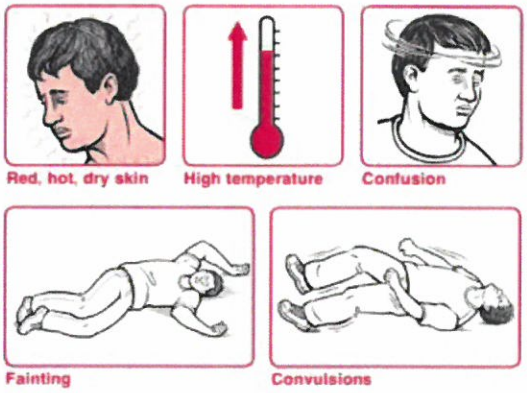
- **Call 911** (or local emergency number) at once.
- Move the worker to a cool, shaded area.
- Loosen or remove outer clothing.
- Provide cool drinking water.
- Fan and mist the person with water.

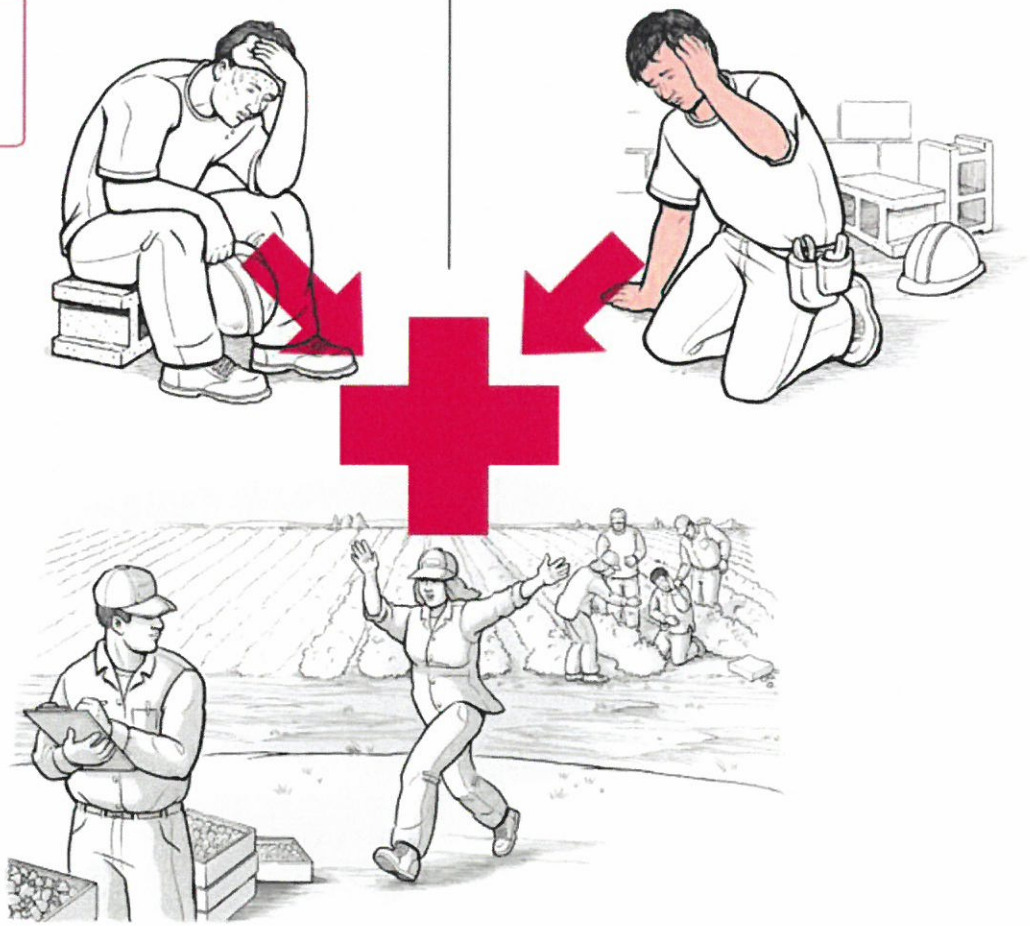
Two types of heat illness:

Heat Exhaustion



Heat Stroke

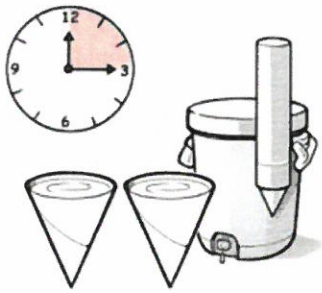




Heat kills – get help right away!

Stay safe and healthy!

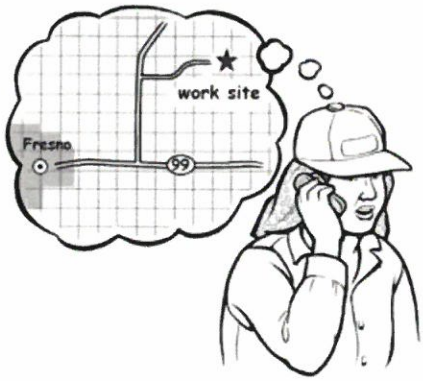
Drink water even if you aren't thirsty – *every 15 minutes*



Watch out for each other

Wear a hat and light-colored clothing

Know where you are working in case you need to call 911



Rest in the shade