

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

DATE: April 26, 2022

SUBJECT: Heat-Illness Prevention Plan

PURPOSE: The heat-illness prevention plan was developed to provide all Arkansas Tech University employees with training and tools to Help protect them from heat-related exposures and illnesses Especially the grounds, housing, HVAC, electricians, and Carpentry shops.

SCOPE: Each job task can be unique and contain a number of heat stress Hazards that must be addressed prior to beginning work activities. Supervisors are responsible for assessing these hazards and taking necessary corrective actions to reduce heat-related illnesses.

RESPONSIBILITY: It shall be the responsibility of the Occupational Safety Coordinator, and Supervisors to implement this Heat-Illness Prevention Plan. All effected employees will be trained on heat-related illnesses, including cause, preventative measures, signs and symptoms, first aid treatment and reporting.

To ensure employees are prepared to work safely under hot conditions, all employees who may be exposed to heat stress and heat-related illnesses will receive training on the following:

Elements of the Heat-Illness Prevention Plan

- Training
- Monitoring
- Hazard Assessment
- Heat-Illness Prevention Strategies
- Emergency Preparedness

Environmental Risk Factors for Heat Stress

- Temperature
- Humidity
- Air movement
- Sun exposure

Work Related Risk Factors

- Physical exertion
- Clothing

Personal Risk Factors

- Age
- Physical Fitness
- Acclimatization
- Medical conditions
- Medications
- Alcohol
- Caffeine

How the Body Handles Heat

- Increased heart rate
- Increased blood circulation to skin
- Evaporative cooling from sweating

The Importance of acclimatization.

Its important for employees to acclimate themselves to hot environments by trying to schedule heavy exertion task for cooler parts of the day and avoiding prolonged exertion during the hottest part of the day. Acclimatization reduces risks of dehydration and salt loss.

The importance of consuming water throughout the work day.

Its important that employees are staying hydrated at all times. One cup (8 oz.) of water or an electrolyte replacement fluid every 15-20 minutes; four cups of water every hour. Increased water intake may be needed to account for increased physical exertion and/or sweating. However, too much water intake can be dangerous and lead to headache, nausea, vomiting, and/or mental confusion.

The importance of rest breaks and shade throughout the work day.

Prolonged physical exertion and muscle activity increases the body's core temperature and reduces the body's ability to cool itself. Short rest breaks are necessary to allow blood to flow to the skin to be cooled. Rest breaks slow down the buildup of heat in the body from prolonged muscle activity. Rest breaks are also important for the heart and allow your heart rate to recover from sustained heat stress and physical exertion. Shade will help with cooling, especially if there is air movement.

Heat-related Illnesses

- Heat Rash
 1. Cause: Irritation of skin due to excessive sweating
 2. Preventative measures:
 - Wear loose fitting clothing that allows sweat to dissipate
 - Wear freshly laundered clothing each day
 - Avoid working in sweat-soaked clothing for prolonged periods
 3. Signs and symptoms:
 - Itchy and painful clusters of red blisters
 4. First aid treatment:

- Cool down out of the elements
- Thoroughly clean and dry the effected area
- Report to your supervisor
- Seek medical treatment if rash persists for more than a few days or if the rash becomes infected.

Reporting: Report to your supervisor.

- Heat Cramps
1. Cause: Depletion of salt and water in the body due to excessive sweating. This is a precursor to more serious heat exhaustion and/or heat stroke.
 2. Preventative measures: Acclimatization to heat and drink adequate amounts of water throughout the day.
 3. Signs and symptoms: Muscle cramps, spasms, and/or pain. Common in arms, legs, abdominal, and back muscles.
 4. First aid:
 - Move to a cool location
 - Drink water or an electrolyte replacement drink to replace lost salt
 - Seek medical treatment if cramps persist or other heat-illness symptoms develop such as an elevated body temperature, elevated heart rate, headache, dizziness, etc.
 5. Reporting: Report to supervisor

- Heat Exhaustion
1. Cause: The body's inability to cool itself, often due to a combination of several factors such as high temperatures, humidity, physical exertion,

dehydration, clothing that blocks sweat evaporation, and/or alcohol use. This is a serious condition that can lead to a life-threatening heat stroke.

2. Preventative measures:

- Acclimatization to heat helps reduce dehydration
- Drink adequate amounts of water throughout the day
- Take small rest breaks in shade to allow body to recover from heavy physical exertion and heat exposure
- Protect skin against sun burn, which reduces the body's ability to cool itself
- If possible, perform heavier physical labor during cooler parts of the day like first thing in the morning

3. Signs and symptoms:

- Elevated core body temperature of 100.4 to 102.2 or oral temperature of 99.6 to 101.4
- Weak, but rapid pulse (elevated heart rate)
- Cool, moist skin (may appear pale with clammy skin)
- Excessive sweating
- Headache and possible irritability
- Fatigue or weakness
- Dizziness and/or feeling faint
- Nausea and/or vomiting
- Decreased urination

4. First aid treatment:

- Seek immediate medical care (call 911)
- Move to cool location
- Have them drink small amounts of cool water

5. Reporting: Report to supervisor

- Heat Stroke

1. Cause: Body is unable to cool itself and regulate core body temperature. This is a serious and life-threatening condition that requires immediate medical attention. (call 911)

2. Preventable measures: Same as for heat exhaustion

3. Signs and symptoms:

- Elevated core body temperature above 104 and a oral temperature above 103.2
- Hot, dry skin or heavy sweating
- Mental confusion, agitation and/or irrational behavior
- Clumsiness
- Slurred speech
- Fainting or a loss of consciousness
- Seizures or convulsions

4. First aid treatment:

- Call 911 and seek immediate medical attention for the victim; do not wait as their life depends on getting immediate medical care.
- Provide immediate and aggressive cooling to their body
- Elevate feet above heart level
- Pack ice in groin and armpit areas
- Soak skin with cool water and fan rapidly to increase cooling
- Do not give them fluids, especially if unconscious

5. Reporting: Report to supervisor

- Rhabdomyolysis
1. Cause: Sometimes caused by a combination of heat stress and prolonged physical exertion, muscle starts to break down and die, releasing proteins and electrolytes into the bloodstream. This is a potentially life-threatening condition affecting the kidneys that requires immediate medical attention.
 2. Preventative measures:
 - Same as heat exhaustion and heat stroke
 - Avoid overexertion, such as lifting objects heavier than you can comfortably lift or straining muscles to a point where they can no longer function properly.
 - Those with diabetes, thyroid conditions or muscular dystrophy are at greater risk.
 - Those with a viral infection are at a greater risk
 - Use of alcohol, illegal drugs, and some medications can increase risk
 3. Signs and symptoms:
 - Muscle cramps, pain and/or loss of range
 - Joint pain and/or stiffness
 - Swelling of muscles
 - Weakness and a decreased ability to perform physical exertion for even a small amount of time
 - Dark urine
 - If kidney damage and/or failure occurs the following life-threatening indicators may be observed: shortness of breath, irregular heart beat, swelling in the legs and feet, seizures, and coma
 4. First aid treatment: Seek immediate medical care for the victim
 5. Reporting: Report to supervisor

MONITORING WEATHER AND WORKPLACE CONDITIONS

The occupational safety coordinator along with supervisors are responsible for monitoring the daily weather and workplace conditions to determine if workers will be exposed to temperatures greater than 80 degrees. If temperatures exceed greater than 80 degrees for more than an hour of work, then a heat hazard assessment needs to be performed. The following additional weather information needs to be considered for the heat hazard assessment.

- Air temperature
- Humidity
- Wind speed
- Barometric pressure
- Cloud cover

HEAT-ILLNESS PREVENTION STRATEGIES

- Implement controls to reduce the hazard and risk level

The first step in the heat-illness prevention strategy is to evaluate those factors in the heat hazard assessment and determine what changes could be made to reduce the hazard to a lower risk level. Examples of effective controls include:

1. Change the work schedule during the summer months for an earlier start time.
2. Heavy exertion task to be done first thing in the morning when it's cooler.
3. Frequent rest breaks.
4. Encourage adequate water intake to prevent dehydration (8oz of water and/or electrolyte replacement fluid every 15-20 minutes. Don't wait until thirsty.
5. Cool off in shaded areas or an air-conditioned space.
6. Train workers to recognize signs and symptoms of heat related illness and on the heat-illness prevention strategies.
7. Alert workers to extreme heat conditions and provide a short review of strategies.
8. Encourage workers to avoid caffeine or alcohol before working in extreme heat.

9. Encourage workers to look out for one another.
10. Acclimate to gradually increase exposure time under extreme conditions.
11. Monitor urine color.

Urine color can be a good indicator of potential dehydration, which can lead to heat stress and heat related illnesses. However, it is not a good indicator of heat stress or illness in itself. In some cases underlying diseases, medications or even some foods may affect urine color. Having workers check their urine color with a urine chart can help monitor water intake during work that involves physical exertion. Normal urine should be pale yellow. The below chart can be used to help a worker determine if he/she is properly hydrated. Some diets, medications and illnesses may affect results.

Dehydration Urine Color Chart

The following Dehydration Urine Color Chart will help you use your urine color as an indicator of your level of dehydration and what actions you should take to help return your body back to a normal level of hydration.



Doing ok. You're probably well hydrated. Drink water as normal.



You're just fine. You could stand to drink a little water now, maybe a small glass of water.



Drink about 1/2 bottle of water (1/4 liter) within the hour, or drink a whole bottle (1/2 liter) of water if you're outside and/or sweating.



Drink about 1/2 bottle of water (1/4 liter) right now, or drink a whole bottle (1/2 liter) of water if you're outside and/or sweating.



Drink 2 bottles of water right now (1 liter). If your urine is darker than this and/or red or brown, then dehydration may not be your problem. See a doctor.