Recognition, Symptoms, and First Aid

Heat Stress

This is how the body releases heat under normal circumstances:

1. **Radiation** occurs when the ambient air temperature is lower than the body's skin temperature. Radiation is the movement of heat energy from a warmer object to a cooler object.
2. **Convection** is the transfer of heat energy from a warmer object or space to a cooler object or space through differences in density and the action of gravity.
3. **Evaporation** is the cooling of a surface through the process of a liquid changing to a vapor and leaving that surface.
4. **Conduction** is the transfer of heat energy from a warmer object to a cooler object through direct contact.

When the ambient temperature of the surrounding air is 95 degrees F or higher, radiation, convection, and conduction stop working. Evaporation is all that is left to cool the body. Protective clothing will make the heat situation even worse.

<table>
<thead>
<tr>
<th>Ensemble</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work clothes/</td>
<td>0° F</td>
</tr>
<tr>
<td>Cloth overalls</td>
<td></td>
</tr>
<tr>
<td>Double Layer Cloth</td>
<td>- 3° F</td>
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<tr>
<td>Protective clothing</td>
<td>- 11° F</td>
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</tbody>
</table>

**The National Weather Service** statistical data shows that heat causes more fatalities per year than floods, lightning, tornadoes, and hurricanes combined.

**Need Help?**
Risk Management and Safety can provide a heat stress evaluation contact us at 334-844-4805
Avoid drinks with caffeine, alcohol, or large amounts of sugar.

**Recommendations for Workers**

**PPE and Protective Equipment**

- Personal protective equipment (PPE) should fit, be breathable, and provide a secure fit. PPE should be chosen to avoid exposure to extreme heat, sun, and high temperatures.

**Clothing and footwear**

- Choose loose-fitting, breathable clothing such as cotton.

**Acclimatization**

- Gradually build up to heavy work.

**Scheduling**

- Schedule heavy work during the coolest parts of the day.

**Supervisors**

- Schedule routine maintenance and repair jobs in cooler, shaded areas.

- Schedule hot jobs for the cooler part of the day.

- Acclimatize workers by exposing them to extreme heat and humidity for periods to build tolerance.

**Recommendations for Supervisors**

Take the following steps to protect workers from heat stress:

- Provide heat stress training that includes the importance of monitoring yourself and coworkers for symptoms.

- Acquaint workers with the signs and symptoms of heat stress.

- Have them rest in a cool, shaded or air-conditioned area.

- Have them drink plenty of water or other cool, nonalcoholic beverages.

- Spray, sponge, or shower them with water.

**Symptoms**

- Muscle cramps

- Profuse sweating

- Persistent dizziness or confusion

- Profound weakness or numbness

- Headache or dizziness

- Nausea

- Rapid pulse

**First Aid**

- Heat rash is a skin irritation caused by excessive sweating. Keep the affected area dry.

- Sweating during hot, humid weather:

  - Drink clear juice or a sports beverage.

  - Stop all activity and sit in a cool place.

  - Do not return to strenuous work for a few hours after the cramps subside.

- Heat cramps

  - Muscle cramps may also be a symptom of heat exhaustion.

  - Heat cramps are likely to occur when the body is dehydrated or salt levels are low.

  - Small muscles of the abdomen, arms, or legs.

  - Stop all activity and sit in a cool place.

  - Drink clear juice or a sports beverage.

  - Do not return to strenuous work for a few hours after the cramps subside.

- Heat exhaustion

  - Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating.

  - Heat exhaustion can occur when the body becomes unable to control its temperature: the body's temperature rises rapidly, the skin becomes dry and hot, and the body becomes dehydrated and unable to cool itself through sweating.

  - When heat exhaustion occurs, the body is unable to regulate its temperature, the body's temperature rises rapidly, and the body becomes dehydrated and unable to cool itself through sweating.

  - Heat exhaustion can result in death.

- Heat stroke

  - Heat stroke is the most serious heat-related illness. It is a medical emergency. When the body is unable to cool itself through sweating, several physical changes occur, including:

    - Rapid heart rate
    - High body temperature (above 104°F)
    - Stiff, soldier-like posture
    - Loss of consciousness

  - Call 911 and notify their supervisor.

  - Move the sick worker to a cool shaded area.

  - Cool the worker using methods such as:

    - Spraying water on the worker's body
    - Sponge or showering them with water
    - Use a fan to increase air circulation

  - Provide cool water or liquids to workers.

  - Provide cool areas for use during break periods.

  - Take breaks in extreme heat and humidity.

  - Avoid exposure to extreme heat, sun, and high temperatures when possible.

  - Take the following steps to prevent heat stress:

    - Wear light-colored, loose-fitting, breathable clothing.

    - Avoid drinks with caffeine, alcohol, or large amounts of sugar.

    - Protect workers from exposure to extreme heat, sun, and high temperatures.

    - Avoid excessive physical exertion, especially when working in a hot environment.

    - Schedule routine maintenance and repair jobs in cooler, shaded areas.

    - Schedule hot jobs for the cooler part of the day.

    - Acclimatize workers by exposing them to extreme heat and humidity for periods to build tolerance.

    - Gradually build up to heavy work.

    - Provide heat stress training that includes the importance of monitoring yourself and coworkers for symptoms.

    - Acquaint workers with the signs and symptoms of heat stress.

    - Have them rest in a cool, shaded or air-conditioned area.

    - Have them drink plenty of water or other cool, nonalcoholic beverages.

    - Spray, sponge, or shower them with water.

**During the summer months, heat illnesses including heat rash and heat cramps are common in outdoor workers. It is not unusual to find heat rash on exposed skin areas of outdoor workers. Always use shade, cool water, and cool areas to prevent heat illness.**