KENTUCKY INJURY PREVENTION AND RESEARCH CENTER

# HAZARD ALERT

## Working in Extreme Heat and Humidity

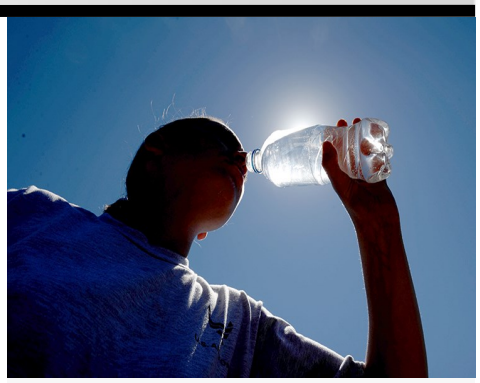
Kentucky Occupational Safety and Health Surveillance, June 2019

## What is the hazard?

Since 1986, more people in the United States have died from heat than from any other weather-related disaster. Heat-related fatalities are 53% higher than floods, 88% higher than tornadoes, and 186% higher than hurricanes[1]. Employers must take appropriate steps to prevent their employees from injury associated with working in extreme heat and humidity. According to the KY Occupational Safety Program, from 2016-2018, 242 Kentucky workers visited the emergency department due to heat-related injuries and illnesses .

### The following injuries and illnesses are possible when working in extreme heat and/or humidity:

- Heat Rash - Presents on the body as irritating, tiny bumps surrounded by red skin. Occurs when sweat is unable to properly evaporate from the skin, normally on clothed parts of the body, such as the back, groin, and armpit. Normally dissipates when the affected area is cooled and dried.
- Heat Cramp - Presents on the body as painful muscle spasms or cramps, most commonly in the calves, shoulders, or thighs. Occurs when a tired or overworked muscle loses electrolytes, such as salt and potassium, through natural sweating, resulting in a chemical imbalance in the muscle. Heat cramps may persist in the affected muscle until the proper restoration of fluids and electrolytes are administered and the muscle is allowed to rest.
- Heat Exhaustion - A victim of heat exhaustion will often present with a rapid heartbeat, pale skin, confusion and irritability, or a throbbing headache. Occurs when the body becomes dangerously dehydrated of water, electrolytes, or both. When experiencing heat exhaustion, the body will produce excess sweat in a last ditch effort to cool itself. Immediate treatment of heat exhaustion is necessary in order to prevent the most dangerous heat-related illness, heat stroke.
- Heat Stroke - Occurs when the body's cooling system fails and is considered a medical emergency. A victim will present with a rapid heartbeat, as well as hot, red skin due to the inability to sweat. With no means to cool itself, internal temperatures will quickly rise to over 104°F. A short amount of time at this temperature will cause cells to break down, resulting in potentially deadly results. If you suspect someone is having a heat stroke, call 911 immediately.



### Recommendations for the prevention of heat-related injury and illness[2]:

- **Wear light colored, loose fitting clothing that does not trap heat or moisture. Keep dry any skin that shows signs of irritation.**
- **If possible, schedule the heaviest or most physically taxing tasks in the morning or evening when the heat index is lower.**
- **Remain hydrated by drinking at least two cups of cool water per hour when working outside; four cups per hour if the heat index exceeds 103°F.**
- **Allow employees who are unaccustomed to working in extreme heat or returning from an absence additional time to acclimate by allowing them more frequent breaks for the first 2-3 days.**
- **Ensure that personnel is properly trained in first aid, and medical supplies are available when emergency services cannot reach the jobsite within 3-4 minutes.**
- **Train supervisors on heat-related symptoms and instruct them to check on workers several times per hour to ensure water is being consumed and rest periods are being taken.**

Kentucky Public Health
Prevent. Promote. Protect.

## Further Resources:

| Name of Resource | Resource Description | Resource Link |
|---|---|---|
| OSHA's Campaign to Prevent Heat Illness in Outdoor Workers. | How to guide on what steps to implement on your jobsite as the temperature or heat index rises to certain levels. | https://www.osha.gov/SLTC/heatillness/heat_index/protective_high.html |
| What Happens When You Get Heat Stroke? | TED-Ed video describing the effects heat stroke have on the body | https://www.youtube.com/watch?v=PpHM4DfPZQU&feature=youtu.be |
| NIOSH Fast Facts—Protecting Yourself from Heat Stress | A guide on symptoms and treatment of heat-related illnesses. | https://www.cdc.gov/niosh/docs/2010-114/pdfs/2010-114.pdf |

**DID YOU KNOW?**

According to a 2017 study, by the year 2100, 74% of people around the world will experience at least 20 days per year of heat and humidity associated with deadly heatwaves [3].

Let us know what you think about this alert. Click here to complete our brief, anonymous survey.

For additional training materials and information regarding the KOSHS program, please visit the program website at: http://www.mc.uky.edu/kiprc/koshs/index.html

**Sources**


[1] https://www.sciencenews.org/article/are-we-ready-deadly-heat-waves-future

[2] https://www.osha.gov/SLTC/heatillness/heat_index/protective_high.html

[3] https://www.nature.com/articles/nclimate3322


### Contact KOSHS:


**Kentucky Occupational Safety & Health Surveillance Program**
333 Waller Avenue Suite 242
Lexington, KY 40504
Toll Free: 800-204-3223 | Local: 859-257-5839

Email: kyfaceprogram@uky.edu

Twitter: https://twitter.com/KYFACEProgram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