Heat Stress Prevention Program

Purpose and Scope

Employees who are exposed to excessive heat or who work in high heat environments may be at risk of heat stress. Various factors can contribute to heat stress such as air temperature, physical activity, individual susceptibility, radiant heat, humidity, air flow, and clothing type. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. This program has been developed to protect employees from heat-related illnesses while at work.

This program applies to all West Chester University employees who are exposed to or may become exposed to excessive heat during the course of their job duties.

Responsibilities

Environmental Health and Safety

- Assisting Departments in implementing the provisions of this program.
- Revising and updating the program as necessary.
- Providing training and education resources regarding heat stress and illnesses; and
- Performing heat stress exposure assessments for employees when necessary.

Supervisor/Manager

- Ensuring employees are trained in identifying the signs and symptoms of heat-related illnesses.
- Providing provisions for rest areas and accessible drinking water to employees.
- Providing fans for air movement when applicable.
- Monitoring the heat index and pursuing, implementing, and enforcing the proper protective measures for employees as specified in this program.
- Notifying EHS of specialized job tasks or environments as defined in this program that require a heat exposure assessment.
- Reporting the results of all heat stress monitoring to employees; and
- Following their respective campus procedure for reporting occupational injuries and illnesses.

Employees

- Working in accordance with the provisions of this program.
- Understanding the signs and symptoms of heat-related illnesses.
- Notifying the supervisor if conditions exist that may lead to heat-related illness; and
- Notifying the supervisor if they begin to experience symptoms of heat-related illnesses.

Heat-Related Illness: Signs, Treatment and Prevention

Signs and Treatment

While working in hot conditions, the human body may not be able to maintain a normal temperature just by sweating. If this happens, heat-related illnesses may occur. The most common health problems caused by hot work environments include:

Heat Stroke:

This is the most serious heat related effect. Heat stroke occurs when the body temperature increases above 1040F. Signs and symptoms of heat stroke are confusion, loss of consciousness, seizures, and lack of perspiration. This condition must be treated as a medical emergency and the employee must receive immediate medical attention. While waiting on medical assistance, the victim should be moved to a cool/shaded area, cooled with water/wet towels/ice packs, and fanned to increase cooling.

Heat Exhaustion:

Signs and symptoms of heat exhaustion include headache, nausea, dizziness, weakness, irritability, confusion, thirst, heavy perspiration, and a body temperature greater than 100.40F. Employees experiencing heat exhaustion should be moved to a cool area, given fluids to drink and given cold compresses for their head, face and neck. Employees should also be taken to a clinic or emergency room to be monitored by medical personnel.

Heat Cramps:

Signs and symptoms of heat cramps include muscle pains usually caused by the loss of body salts/fluids, this can happen later as well. Employees should replace fluid loss by drinking water and/or carbohydrate-electrolyte replacement liquids (e.g. Gatorade) every 15 to 20 minutes. If cramps are severe, seek medical attention.

Heat Rash:

Heat rash is caused by excessive perspiration and looks like a red cluster of pimples or small blisters. Heat rash usually appears on the neck, upper chest, in the groin, under the breasts and in elbow creases. Treatment for heat rash is to provide a cooler, less humid environment.

Dehydration:

Dehydration is a major factor in most heat disorders. Signs and symptoms of dehydration include increasing thirst, dry mouth, weakness, or light-headedness (particularly if worse upon standing), and a darkening of the urine or a decrease in urination. Dehydration can be reversed or put back in balance by drinking fluids that contain electrolytes (i.e. Gatorade) that are lost during work related activities. Avoid caffeinated drinks.

Prevention

While heat related illness are dangerous and potentially life threating, they can be prevented. Prevention methods include:

Acclimation:

Acclimation is a process by which the physical processes of an employee's body adjust to the environment over a period of time. Based on data obtained from OSHA, this process usually takes five to seven days. This process could take up to three weeks depending on the individual and their work environment. According to the American Industrial Hygiene Association, the process requires a consistent work level for at least two hours each day during the acclimation period in order for an

employee to become acclimatized. Mere exposure to heat does not confer acclimatization, nor does acclimatization at one heat stress level confer resistance to heat stress at a higher temperature or more vigorous workload. Employees who are not adequately acclimatized to the heat may experience temporary heat fatigue resulting in a decline in performance, coordination, or alertness. They may also become irritable or depressed. This can be prevented through gradual adjustment to the hot environment. People in good physical condition tend to acclimatize better because their cardiovascular systems respond better.

Engineering Controls:

For employees working indoors, the best way to prevent heat-related illness is to make the work environment cooler. Where and if possible, use air conditioning to cool the work area. Alternatively, increase the general ventilation as much as possible by opening windows or doors. When available, use cooling fans to aid in increasing ventilation.

Safe Work Practices:

For employees working outdoors or working indoors without air conditioning or ventilation, take scheduled breaks in cool areas. Ensure there is plenty of cool water to drink and take water breaks as needed. Immediately report any problems to a supervisor. Supervisors should consider scheduling the hottest work for the coolest part of day, assigning extra employees to high demand tasks, and using work-saving devices (e.g. power tools, hoists or lifting aids) to reduce the body's work load. All employees should watch out for the safety of their coworkers.

Heat Index

The Heat Index is a single numeric value that uses both temperature and humidity to inform the public on how the weather outdoors "feels". The higher the Heat Index, the hotter the weather feels. OSHA has used the Heat Index to assign protective measures for workers as the Heat Index increases. These protective measures may reduce the likelihood of heat related illnesses. The Heat Index and related protective measures are contained in Appendix A.

Training

Employees who may be exposed to extreme hot or cold conditions must receive training prior to working in such conditions. An online training module is available from EHS. This training will cover the general safety precautions related to heat stress. However, employees must still be trained on any additional precautions specific to their equipment or work areas.

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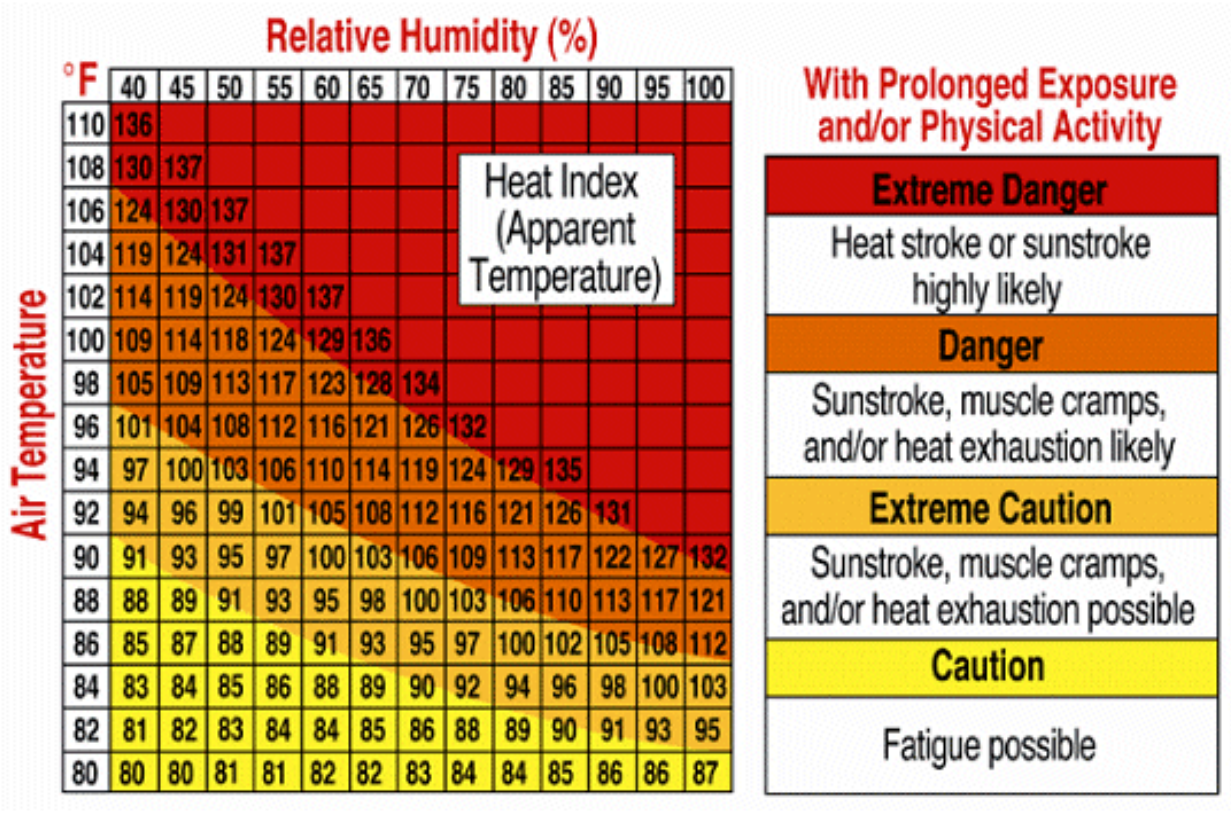
Appendix A: Heat Stress

The heat index is a simple tool and a useful guide for employers/employees making decisions about protecting employees in hot weather. It does not account for certain conditions that contribute additional risk, such as physical exertion. Consider taking the steps at the next highest risk level to protect employees from the added risks posed by:

- Working in the direct sun (can add up to 15°F to the heat index value)
- Wearing heavy clothing or protective gear



Heat Index	Risk Level	Protective Measures
<91°F	Lower (Caution)	• Provide plenty of drinking water • Ensure that adequate medical services are available • Plan ahead for times when heat index is higher, including worker heat safety training • Encourage workers to wear sunscreen • If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat related illness
91°F to 103°F	Moderate	**In addition to the steps listed above:** • Remind workers to drink water often (about 4 cups per hour) • Review heat related illness topics with workers such as recognition, prevention and first-aid • Schedule frequent breaks in cool, shaded areas • Acclimatize workers • Set up a buddy system and instruct workers and supervisors to watch for signs of heat related illnesses • Schedule strenuous activities at a time when the heat index is lower • Develop and enforce work rest schedules • Monitor workers closely
103°F to 115°F	High	**In addition to the steps listed above:** • Alert workers of high risk conditions • Limit physical exertion • Have a knowledgeable person at the work site who is well informed about heat related illness and able to determine appropriate work/rest schedules • Adjust work activities (e.g. reschedule work, pace/rotate jobs) • Use cooling techniques • Watch/communicate with workers at all times
115°F	Very High to Extreme	**If essential work must be done, in addition to the steps listed above:** • Conduct physiological monitoring (e.g. pulse, temperature, etc.) • Stop work if essential control methods are inadequate or unavailable • Reschedule non-essential activities for days with a reduced heat index or to a time when the heat index is lower • Move essential work tasks to the coolest part of the work shift • Consider earlier start times, split shifts or evening/night shifts • Strenuous work tasks and those requiring the use of heavy or non-breathable clothing or impermeable chemical protective clothing should not be conducted when the heat index is at or above 115°F