



# TDCJ Risk Management's *Training Circular*

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Risk Management Issues

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# May Hot Weather

Time to start getting ready for a hot Texas summer! As summer time and hot weather nears, heat stress becomes a significant workplace concern.

Every reasonable effort should be made in the interest of preventing heat related injuries in the workplace. Problems of heat stress are more common than those prevented by very cold environments.

Heat stress is best prevented by acclimatizing staff and offenders to working under hot and humid climate conditions, assuring adequate fluid intake, and assuring adequate salt intake.

Proper treatment of heat stress should begin at the worksite, but severe heat stress is a medical emergency which must be treated in a medical facility.

## **EXTREME HEAT**

Workers can suffer heat-related injuries, illnesses, and even death when the body's temperature control system is overloaded. Normally, the body cools itself by sweating, but under some conditions just sweating is not enough.

When a person's body temperature rises rapidly their vital organs are threatened. In a typical year about 175 Americans succumb to heat. Heat kills more people each year in the United States than tornadoes, floods, hurricanes, or lightning.



## **HEAT STRESS FACTORS**

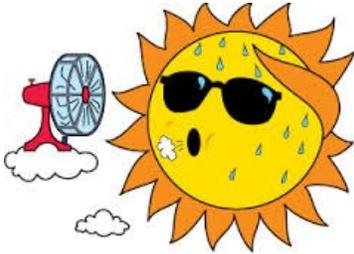
For the human body to maintain a constant internal temperature, the body must rid itself of excess heat. This is primarily achieved by varying the rate and amount of blood circulation to the outer layers of the skin and the releasing of fluid onto the skin by the sweat glands.

The evaporation of sweat cools the skin, releasing large quantities of heat from the body. As area temperatures approach normal skin temperature, cooling of the body becomes more difficult.

If air temperature is as warm or warmer than the skin, blood brought to the body surface cannot lose its heat, and sweating becomes the primary means of maintaining a constant body temperature.

Sweating does not cool the body unless the moisture is removed from the skin by

evaporation. Under conditions of high humidity, the evaporation of sweat from the skin is decreased and the body's efforts to maintain acceptable body temperature may be significantly impaired.



## HEAT STRESS SAFETY HAZARDS

The frequency of accidents in general appears to be higher in hot environments than in more moderate temperatures. Heat tends to promote accidents that occur because of sweaty palms, dizziness, or the fogging of safety glasses. Employees can get burned from accidental contact with hot materials such as steam or metal surfaces.

Mental confusion, tiredness, and irritability may occur when an employee becomes overheated. The effect of these conditions can result in poor judgment and unsafe practices.

## TYPES OF HEAT-RELATED ILLNESSES

**Heat Cramps:** usually develop following strenuous exercise, and in muscles that have been subjected to extensive work. The pain is brief, intermittent, crampy, and may be quite severe. Heat cramps usually occur after several hours of work, and may occur even at low temperatures. The cause is inadequate replacement of electrolytes (sodium and potassium).

### Treatment (for all heat illnesses)

- Move person out of direct sunlight into a cool environment
- Remove clothing, maintaining modesty
- Have them drink water if conscious
- Sprinkle water on them; fan them if there is no breeze
- Get medical attention ASAP

**Prevention** is accomplished by ample fluid intake during and after work, and salting of food during meals if not medically contradicted. Use of electrolyte replacement drinks or lightly salted fruit drinks at the worksite may also be beneficial.

- Drink at least a 1/2 cup of water every 15 minutes when working in hot environments

- Take a 5 minute break every 30-60 minutes
- Decrease intensity of work under extreme conditions

### Heat Exhaustion (Heat Prostration):

The most common form of heat stress, caused by depletion of water and salt. Symptoms include:

- Weakness, anxiety, fatigue, thirst, dizziness, headache, nausea and urge to defecate.
- Profuse perspiration and rapid pulse.
- Possible confusion or loss of coordination

Heat prostration may lead to **heat syncope**, a sudden onset of collapse that is usually of brief duration. During heat syncope the patient appears ashen gray and skin is cool and clammy. Failure to treat heat exhaustion may result in progression to heat stroke. Risk factors include failure to maintain adequate fluid intake during exertion, and taking diuretics which increase the excretion of water from the body.

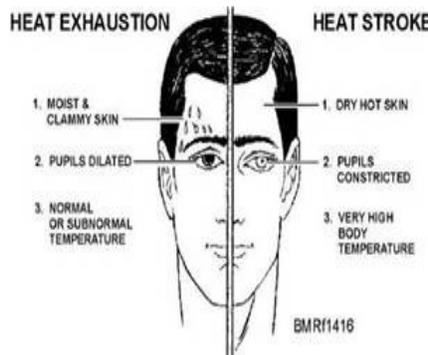


**Heat Stroke:** is a medical emergency. While it may be preceded by signs of heat exhaustion, the onset is often sudden. During a heat stroke the body has lost its ability to dissipate heat and maintain a normal body temperature. Body temperature is often elevated over 106°F.

Exertional heat stroke occurs in young, healthy people who maintain inadequate fluid intake during exertion.

#### **Signs include:**

- Headache
- Gooseflesh, chills
- Unsteady gait
- Weakness
- Nausea/vomiting
- Incoherent speech progressing to coma
- Rapid pulse
- Skin hot and dry



Classical heat stroke is seen in the elderly, those with predisposing medical conditions such as congestive heart failure, diabetes and alcoholism, and those on medications which cause fluid depletion, interfere with sweating or in-

terfere with the body's thermoregulatory system.

Classical heat stroke has few signs.

#### **Signs Include:**

- Sudden collapse, brief duration
- Skin cold and clammy

**Treatment** is a medical emergency. Cooling efforts should be provided while medical staff is contacted for further treatment. **Salt tablets should not be used in the treatment or prevention of heat stress.** CMHC D-27.2

**Prevention** includes ample fluid intake during work, proper work-rest cycles, excluding people at high risk from working under conditions of extreme heat and humidity, and maintaining adequate indoor conditions, such as access to cool fluids, ice if available, and use of cooling fans, for persons at increased risk for heat stroke. The key to all heat related illness is **PREVENTION.**

### **HEAT RASH**

**Heat Rash** - Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age, but is most common in young children.

#### **Recognizing Heat Rash -**

Heat rash looks like a red cluster of pimples or small blisters. It is more likely to occur on the neck and upper

chest, in the groin, under the breasts, and in elbow creases.

**What to Do** - The best treatment for heat rash is to provide a cooler, less humid environment. Keep the affected area



dry. Dusting powder may be used to increase comfort.

Treating heat rash is simple and usually does not require medical assistance. Other heat-related problems can be much more severe.



### **SUN SAFETY**

People who spend a lot of time outdoors run the risk of suffering from more than just heat exhaustion or heat stress.

Repeated exposure to ultraviolet (UV) radiation places them at risk for various forms of skin cancer and eye diseases such as cataracts. The number of skin cancer cases in the United States continues to increase each year.

The sun's rays are most intense and damaging during the summer months. The

greatest exposure occurs from 10:00 a.m. until 4:00 p.m., but you can still get a sunburn during cloudy weather, and other times of the day.

The areas of the body most at risk to exposure to UV radiation are the back of the neck, ears, face, eyes, and arms.

These and other body parts can be easily protected by wearing proper clothing, sunglasses, and sunscreen. You can reduce your risk by taking precautions and avoiding repeated exposure to the sun.

### **AD-10.64**

The Agency recognizes the very real hazards associated with working within such temperature extremes and has taken proactive measures to protect staff.

So much in fact, that this medical issue has an Administrative Directive devoted to it. AD-10.64 is the Agency's policy addressing temperature extremes in the TDCJ workplace.

AD-10.64 contains the Heat and Humidity Matrix, detailing correlation between outdoor temperature and humidity, as well as preventive steps to take when the apparent or 'feels like' temperature reaches varying levels of severity.

According to the matrix, which is adopted from the National Weather Service, a person

can begin to feel the effects of heat exhaustion in temperatures as low as 85° if humidity is at a high level.

Risks for heatstroke begin at temperature of 91°. At 95°, there can be an imminent danger of developing heatstroke.

Keep in mind, the risk factors at the above stated temperatures are aggravated by extremely high humidity levels.

### **Reporting:**

In all cases of temperature-related incidents or injuries the first aid process shall be initiated immediately by a correctional officer or other unit staff. Medical staff and the unit risk manager shall be notified immediately. If there is no on-site medical staff, 911 shall be called immediately. Any temperature-related incident or injury shall be reported to the Emergency Action Center in accordance with AD-02.15, "Operations of the Emergency Action Center and Reporting Procedures for Serious or Unusual Incidents." AD-10.64

Please remember when reporting incidents to only address the symptoms and allow the medical personnel to diagnose the issue.

**WATER.  
REST.  
SHADE.**

The work cannot be done without them.

### **REFERENCES:**

- CMHC policy HS D-27.2
- TDI, DWC, Workplace Safety, HS99-151B
- CMHC, Heat Stress, B-15.2
- TDI, DWC, Heat-Related Injury & Illness Prevention Factsheet, HS04-047B
- TDI, DWC, Sun Safety, HS96-096E
- CDC, Emergency Preparedness & Response, Extreme Heat
- TDCJ, AD-10.64, Temperature Extremes in the TDCJ. Workplace

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