

TerranearPMC Safety Share

Week of June 9, 2014 – Heat Stress Revisited

Ever since Korey Striker, defensive tackle for the Minnesota Vikings died of heat stroke during routine preseason training in August 2001, heat stress began to receive considerable publicity. Stringer, 27, a 6-foot-4-inch, 335-pound league all-star who was entering his seventh professional season, fell victim to heat-related illness. The team was practicing for about two and a half hours, with the temperature well into the 90's and extreme humidity. All players were wearing full pads. The heat index was measured to be 110 (this is a heat stress measurement index that takes into account effects of temperature and humidity. A heat stress index of 100 is a tell tale signal that preventative measures need to be initiated). Stringer began vomiting while he complained of dizziness and became weak and began breathing heavily. He was driven to the hospital where his core temperature was measured to be 108 degrees. He was unconscious until his death a few hours later. Korey Striker wasn't in some remote area by himself without any means to keep himself hydrated. He was on a football field with numerous teammates and the team physician nearby. Plenty of water and drinks with vitamin/mineral supplements were available as well.

Of course many of us watched the first game of the NBA Championship in San Antonio, where the building's air conditioning broke down and LeBron James (who many consider the best basketball player on the planet – these are not my words!) succumbed to cramping which sidelined him for the most critical part of the game.

Heat stress is real and is a serious condition where many people, either in a work environment or just doing yard work around the house, are susceptible to heat-related illnesses. As you work in the field and exert energy, your body builds up heat. The excess heat causes your body to sweat, and as the sweat evaporates, you cool down. When your body is unable to cool itself, you may develop symptoms of heat related illness.

The risk of becoming sick from the heat depends on many variables including:

- Your physical condition
- Medications, weather, temperature, humidity and wind
- Type of clothing and PPE worn
- Amount of physical exertion
- Working conditions; full sun or shade

The types of heat related illness vary from mild to life threatening and include the following:

Dehydration – Your body is sweating fluids faster than they are being replenished. You may feel weak and very thirsty.

Heat Rash/Prickly Heat – This rash occurs in areas where sweat is not easily removed from the surface of the skin. Heat rash can be extremely irritating because it develops in very sensitive areas of the body. This problem can be mitigated by resting in a cool, dry place and allowing your clothing to dry. Bringing a second set of clothes to the site and changing in the middle of your shift may be helpful. Also, wearing clothing that wicks moisture quickly - like many of the new high-performance fabrics, may also avoid this issue. While getting a rash is not life threatening, it is uncomfortable, may cause your performance to be degraded, and in extreme cases, could lead to infection if not treated.

Cramps – This condition results in muscle spasms and occurs when there is a loss of electrolytes in the body due to heavy sweating. Electrolytes are minerals such as sodium, potassium and magnesium that are essential to the body. The fact is, the specific mechanism that causes heat cramps is not known. However, we know



TerranearPMC Safety Share

that this condition affects large muscles/muscle groups such as thighs, shoulders and arms. In some cases, the cramps may occur hours after the activity is stopped. And as many of saw with LeBron James, heat cramps can be debilitating. Staying hydrated with water and replacing electrolytes with sports drinks will help alleviate heat cramps. However, hydration needs to occur **BEFORE** cramping begins, so the time to drink water is as soon as you realize that you will be working in a heat stress environment.

Heat Exhaustion – Symptoms of heat exhaustion include clammy moist skin, dizziness and possible fainting. You may feel nauseated, have a headache and feel tired. If you have these symptoms, it's time to get out of the sun, take a break and drink fluids. Removing your PPE and loosening/removing tight fitting clothes will also help.

Heat Stroke – Heat stroke is a life threatening emergency. Symptoms of heat stroke include hot dry skin (because there is no more water in your system to initiate sweating), rapid heartbeat, confusion, delirium, rapid/shallow breathing and loss of consciousness. If these symptoms are noted, call 911 and immediately and take the following actions:

- Move the victim to shade
- Remove or loosen clothing
- Cool the body, neck and head with cold water, ice packs and fans
- Place the victim in the recovery position until first responders arrive
- NOTE: this is one condition where decontamination procedures need to be suspended!

There are many things that are available to us to ensure we do not fall victim to heat stress. Work/rest cycles can be established (usually this involves using a wet bulb globe temperature meter) or to monitor your heart rate regularly throughout your work shift. If you heart rate exceeds the number of “180 minus your age,” there is a strong possibility that you are being placed at risk. Stop working and get to an area that has shade and stay hydrated. Other things that can be done include:

- Review the symptoms of heat issues during the morning tailgate safety meeting
- Wear loose fitting, light colored clothing – without disrespecting the PPE requirements of the job
- Select PPE carefully, keeping in mind the need to balance exposure protection with heat safety issues
- Use fans or shade structures on site to minimize sun/heat exposure
- Start earlier in the day or work at night to eliminate working during the hottest time of the day
- Become acclimated to the weather before working long shifts
- Maintain body fluids
 - Drink about one cup of water every 15 to 20 minutes, even if you are not thirsty
 - No alcohol, coffee, tea or caffeinated beverages
 - Electrolyte replacement good; sugary and ”energy” drinks bad
- Build in rest periods during the shift
- Eat light meals and avoid heavy foods Do not drink alcohol to excess in the evenings - moderation will help keep your fluid levels high.

Heat stress must be taken seriously – no matter if you are at work in a remote location or just mowing your lawn in your back yard. As serious as heat stress illnesses can be, this condition is 100% preventable. It's simply a matter recognizing when these conditions are present and to take the proper measures.

No one can make you feel inferior without your consent.

Eleanor Roosevelt