

The theme this month is Heat Stress

Heat stress is the condition affecting individuals working in high temperatures whose body is unable to effectively cool itself. The heating and cooling balance in the body depends on air temperature, humidity, radiant heat, physical activity, cooling, and body adjustments. When the body cannot regulate its temperature internal core heats up leading to heat stress. Heat stress can not only lead to fatal conditions for an individual, such as heat stroke but, can affect a person's ability to think and perform important safety related job task. A loss of just 2% of bodily water levels can impair job performance.



What are the symptoms of heat stress?

- Dizziness, light-headedness, blurred vision, and headache.
- Fever, usually over 100 degrees Fahrenheit. Normal body temperature is 98 F.
- Fatigue, weakness, or fainting (syncope).
- Nausea and vomiting.
- Rapid, shallow breaths.
- Severe or excessive sweating and cold, clammy (damp) skin.
- Swollen ankles or swelling in the feet and hands (heat edema).
- Weak, fast heartbeat and low blood pressure when you stand up (orthostatic hypotension).

Symptoms of heat stress may develop slowly or appear suddenly. Before heat stress symptoms appear, you may develop a red rash (heat rash) or heat cramps. These painful muscle cramps can affect any muscle, but they usually happen in the arms or legs.

Prevention

How employers can protect workers against heat stress

- Train workers in heat stress awareness and first aid
- Provide drinking water and electrolytes
- Provide rest breaks and air-conditioned rest areas
- Rotate work responsibilities throughout the day to avoid any one person exposed to extreme heat.
- Post urine color chart in washrooms to raise awareness about hydration
- Encourage workers to stay fit; to drink water
- Indoors, provide fans for air movement
- Use machines to reduce physical demands of work
- Schedule most strenuous work to cooler times of the day
- Measure daily Humidex ratings and have a Humidex Heat Stress Response Plan
- Have a heat stress prevention program specific to your workplace

SAFETY BULLETIN – JUNE 2023

OSHA Considers Rule Changes Relating to Heat Stress

For the latest information on the rule changes being considered:

<https://www.safetyandhealthmagazine.com/articles/24142-whats-being-done-protect-workers-heat-illness>.

HYDRATION IS THE KEY TO PREVENTION

Are you hydrated? Use the urine color chart to identify hydration level.

		PROPERLY HYDRATED If urine resembles or matches these colors – maintain level
		DEHYDRATED If urine resembles or matches these colors – more fluids should be consumed
		SEVERELY DEHYDRATED If urine resembles or matches these colors – Seek medical help to determine the severity of dehydration

RECOMMENDED INTAKE
 H₂O
 MEN = 13 CUPS/DAY
 WOMEN = 9 CUPS/DAY
 Hotter environments and/or strenuous activity requires increased intake.
 6-10 OZ. EVERY 15-20 MINUTES DURING STRENUOUS ACTIVITY, ESPECIALLY IN HOT ENVIRONMENTS

CONSEQUENCES OF FLUID LOSS AND IMBALANCE

- 2% – Impaired Performance
- 4% – Capacity for muscular work declines
- 6% – Heat exhaustion
- 8% – Hallucination
- 10% – Circulatory collapse and heat stroke

HYDRATION AND HEAT STRESS EFFECT PERFORMANCE

1. ENVIRONMENTS OF 90°F OR ABOVE
Use extreme caution, especially during strenuous activity.

2. ACCLIMATE
Allow body to adjust to high-heat, high-humidity environments.

3. PPE CLOTHING
PPE is necessary but can greatly increase risk of heat stress; therefore, monitor yourself continuously. At 87°F and above, experts recommend spending no more than 15 minutes of any one hour in an impervious suit unless cooling is provided or wearing a heat stress monitor.

4. THIRST AND/OR SWEAT
These are NOT ALWAYS dependable gauges for proper hydration or fluid intake.

5. KNOW THE SYMPTOMS
Be familiar with heat stroke, heat exhaustion and heat cramp symptoms to respond quickly (Review Heat Illnesses)

6. PREVENTION
Preventing heat stress is much easier than recovering from a heat stress illness. Drink fluids and replace electrolytes on a regular basis throughout the day.

HEAT INDEX	HEAT CATEGORY	LIGHT WORK (Less strenuous activities)	MODERATE WORK (Strenuous activities)	HEAVY WORK (Very strenuous activities)
≥ 110° F (43° C)	RED	45/15	40/20	STOP WORK Seek medical attention
98-109° F (37-42° C)	YELLOW	50/10	45/15	40/20
≤ 87° F (30° C)	GREEN	REASONABLE AND SELF-PACING		

HEAT AWARENESS

- EXTREME DANGER** 125°F or higher
Heat Stroke highly likely
- DANGER** 103°F - 124°F
Heat Cramps or Heat Exhaustion likely and Heat Stroke possible with prolonged exposure and/or physical activity
- EXTREME CAUTION** 90°F - 103°F
Heat Stroke, Heat Cramps, or Heat Exhaustion possible with prolonged exposure and/or physical activity
- CAUTION** 80°F - 90°F
Fatigue possible with Extreme Caution possible with prolonged exposure and/or physical activity

HYDRATION RECOMMENDATIONS

- Heavily heat stroke should not exceed 15 oz (1.5L)
- Heavy heat stroke should not exceed 10 oz (1L)
- Fluids: These levels of caution for every one electrolyte replacement

HEAT ILLNESSES

HEAT ILLNESS	Symptoms	Treatment
SUNBURN	Redness & painful skin; swelling of skin, blisters, fever and headaches are typical in severe cases.	Outlets for mild cases. DO NOT break blisters. If they do break, apply dry, sterile dressing. For severe cases, consult a physician.
HEAT CRAMPS	Painful muscle spasms, usually in the legs and abdomen. Possible heavy sweating.	Apply firm pressure on cramping muscles, then gently massage to relieve muscle spasms. Give sips of electrolyte drink every 15 minutes.
HEAT EXHAUSTION	Heavy sweating, weakness, pale and clammy skin, nausea, low blood pressure, rapid pulse, lightheaded and possible vomiting.	Stop exertion, move to a cool spot and drink electrolyte drink every 15 minutes for an hour. If victim vomits, seek immediate medical attention.
EXERTIONAL HEAT ILLNESS	Stuporous appearance, tired, nausea with possible vomiting. Unsteady gait, heavy perspiration, dehydrated with high body temperature (up to 104°F), often accompanied by headache, rapid respiration and pulse.	Cease exertion and promptly cool body exterior. Initiate replacement of fluids – water first, then electrolyte drink. If victim cannot retain fluids, transport to hospital.
HEAT STROKE	High body temperature (105°F or higher), hot, red and dry skin, strong rapid pulse, possible unconsciousness.	Heat stroke is a severe medical problem. Move victim to cooler area and reduce temperature with cold bath or sponging. Use fans and air conditioners. Get victim to the hospital – DELAY CAN BE FATAL. DO NOT GIVE FLUIDS!

HEAT STRESS CATEGORY

TODAY'S HIGH	1 CATEGORY	2 CATEGORY	3 CATEGORY	4 CATEGORY	5 CATEGORY
	TIME	TIME	TIME	TIME	TIME