



Understanding Heat Stress

What is Heat Stress?



- Heat stress occurs when the body is unable to get rid of excess heat, leading to a rise in core temperature and increased heart rate
- Caused by the combination of internal body heat (from muscles/organs) + external environmental heat
- Increasingly more common due to rising global temperatures



Global Impact

- Heat stress is the leading cause of weather-related deaths
- Impacts traditionally cooler regions, including parts of Europe, Latin America, and East Africa

The 4 Stages of Heat Stress

1. Heat Rash

Symptoms: Itchy red bumps from blocked sweat glands

Treatment: Move to a cooler environment and treat if infected

2. Heat Cramps

Symptoms: Painful muscle spasms caused by electrolyte loss from excessive sweating

Treatment: Rehydrate and rest; to prevent, drink water every 15-20 minutes

3. Heat Exhaustion

Prompt Treatment Needed!

Symptoms: Dizziness, headache, nausea, rapid heartbeat, and sweaty skin

Treatment: Remove from hot environment, hydrate, rest

4. Heat Stroke

Emergency!

Symptoms: Hot, dry skin, mental confusion, seizures, possible unconsciousness

Treatment: Seek immediate medical attention; cool down with shade, hydration, and removal of excess clothing

What To Do in a Heat Stroke Emergency

- Call emergency services immediately
- Move the person to a cooler area
- Use cold compresses, fans, or cool water
- Do not give fluids if the person is unconscious or confused



Hydration Tips

Dehydration is central to heat stress

- Drink water every 15-20 minutes during physical activity in hot environments
- Avoid caffeine and alcohol
- Include electrolyte-replenishing beverages when sweating heavily



Who's at Risk? Factors Affecting Heat Stress



Age, Weight, &
Fitness



Dehydration



Medications,
Drugs, & Alcohol
Consumption



Environmental Factors:
High Air Temperatures,
Radiant Heat, High Humidity,
and Poor Ventilation



Workload:
Strenuous Physical
Activity or Working in
Heavy Protective Gear

How to Prevent Heat Stress



Engineering Controls

- **Ventilation:** Use fans, air conditioning, and portable exhaust systems to reduce hot air
- **Cooling Systems:** Install local cooling devices like air chillers or blowers



Administrative Controls

- **Scheduled Breaks:** Regular rest periods, especially for high-risk workers
- **Hydration Plans:** Provide cool water every 20 minutes
- **Work Rescheduling:** Schedule the hottest jobs during cooler parts of the day or seasons



Personal Protective Equipment (PPE)

- **Reflective Clothing:** Reduces radiant heat but must allow air exchange
- **Cooling Vests:** Ice, water-cooled, or circulating air systems
- **Wetted Clothing:** Simple and effective for extreme heat conditions

OSHA Compliance



- ✓ OSHA's National Emphasis Program (NEP) on Heat Illness and Injury Prevention aims to protect workers from heat-related hazards in both outdoor and indoor workplaces.
- ✓ The program involves targeted enforcement, outreach, and technical assistance, particularly during warmer months when heat-related risks are higher.
- ✓ OSHA will conduct inspections in high-risk industries when the National Weather Service issues a heat warning or advisory.

Sources:

1. Ben Hoffman MD, MPH, Chief Medical Officer, WorkSTEPS; 2. "[Heat Stress Guide](#)." OSHA.Gov, Occupational Safety and Health Administration