

SAFETY ALERT



Heat Stress



WHAT IS HEAT STRESS?

Heat Stress is when too much heat is absorbed by a person, causing stress, illness or even death. It is the total heat burden to which the body is subjected by both external and internal factors, ie:

External

- Temperature
- Humidity
- Amount of air movement
- Radiant temperature of surroundings
- Clothing

Internal

- Physical activity (metabolic heat load)
- Heat stress is not, in itself, a medical condition, however if it is high enough, the body needs to use cooling mechanisms to maintain normal function and to prevent adverse effects such as heat stroke.

WHAT FACTORS CONTRIBUTE TO HEAT STRESS?

Factors that contribute to heat stress are those which produce heat and affect the body's ability to disperse excess heat and maintain normal body temperature. These are:

Work rate	<i>The heavier the work, the greater the amount of metabolic heat produced.</i>
Air temperature	<i>The higher the air temperature, the harder it is for your body to disperse metabolic heat and maintain body temperature by sweating.</i>
Humidity	<i>The higher the humidity the lower the sweat evaporation rate.</i>
Air flow	<i>The lower the rate of air flow (or wind speed) the lower the rate of sweat evaporation.</i>
Clothing	<i>Heavy or protective clothing reduces heat dispersion by trapping the heat within the clothing. This reduces the airflow, preventing evaporation of sweat and therefore dispersal of body heat.</i>
Radiant heat	<i>From furnaces, stage lighting, boilers, welding etc</i>

WHAT ARE THE BODY'S COOLING MECHANISMS?

In very hot conditions, sweat evaporation is the only means by which the body can maintain its temperature within the narrow range necessary for healthy functioning. The large amounts of fluid that can be lost by this mechanism must be replaced to prevent dehydration and the failure of heat regulation that will ensue.

WHAT ARE THE HEALTH EFFECTS OF HEAT STRESS?

These vary from mild to severe:

Mild heat illness

Symptoms: Feeling of weakness, dizziness

Treatment: Rest in a cool place, frequent drinks of non-alcoholic fluid, removal of any heavy clothing

Heat exhaustion

This results in collapse of the affected person due to dehydration and overloaded cardiovascular system.

Symptoms: Fainting, lethargy, headache, low blood pressure, nausea, clammy, pale or flushed skin, normal to slightly elevated body temperature (>39C)

Treatment: Removal of any heavy clothing, rest in a cool place, frequent drinks to replace fluid

Heat stroke

This is a very **serious condition** that can result in death or permanent injury from brain damage.

Signs of heat stroke include:

- Irritability;
- Confusion, disorientation;
- Incoherent speech;
- Hot, dry flushed skin;
- Convulsions;
- Loss of consciousness;
- Body temperature > 40C;
- Cardiac arrest

IF signs of Heat Stroke appear; immediate first aid must be given, while awaiting transfer to hospital. It is essential to cool the person affected by removing heavy clothing, moving to a cool place, sponging with water and vigorous fanning.

ARE SOME PEOPLE MORE LIKELY TO SUFFER THE ADVERSE EFFECTS OF HEAT STRESS?

Yes! If you are overweight, physically unfit, suffer from heart diseases, abuse alcohol or take certain medications you are at greater risk of the conditions listed.

People who are not acclimatised do not have as efficient sweat-evaporating cooling mechanisms as those who are. It should also be realised that people vary in the efficiency of their cooling mechanisms and hence their ability to tolerate heat stress.

HOW CAN THE EFFECTS OF HEAT STRESS BE AVOIDED? How should heat hazards be managed?

Where the potential for heat stress exists in hot workplaces, or where hot work is carried out, the following process will assist management of the hazard.

By measures which decrease the level of the heat stress or improve the efficiency of the body's cooling mechanisms. These include:

RISK CONTROL

What can you do to avoid the effects of Heat Stress?

- Ensure you have easily accessible cool water either onsite or brought from home
- Ensure you are wearing appropriate clothing for the job; i.e. vented clothing, long sleeved shirts if working in the sun, broad brim hat etc.
- Query the location of cool, easily accessible rest areas;
- Maintain your general health & fitness



What can supervisors do to avoid the effects of Heat Stress on their workers?

- Where possible, reschedule work so that hot work is carried out in the cooler parts of the day
- Rotate staff through hot areas to reduce exposure (i.e. so that you aren't the only one out in the heat all day if other workers are available to complete the job also)
- Where possible, avoid working in hot winds;
- Encourage workers to have a short rest and drink plenty of fluid they feel unwell
- Be wary of acclimatisation of new employees or employees returning after a break
- Ensure you are wearing the correct clothing for the job
- Encourage you to maintain your health and fitness

HOW SHOULD ADVERSE EFFECTS OF HEAT STRESS BE TREATED?

Some effects (eg. heat stroke) are very serious and must be regarded as medical emergencies.

If the person appears to be suffering from heat exhaustion the following measures are appropriate:

- Remove from heat
- Rest in coolest available place
- Encourage drinking cool (**not cold**) fluids
- Obtain medical or nursing assistance.

If heat stroke is suspected (decreasing sweating, high temperature, hot, dry skin, and even confusion and loss of consciousness) **medical attention is required urgently**. First aid consists of cooling the body as quickly as possible (eg. soaking the victim's clothing in cold water) and increasing air movement by fanning the victim.

As your employer we are committed to ensuring all employees are safe from injury and risks whilst at work. I would like to remind you of your obligations in creating a safe working environment by identifying any potential hazards associated with the job you are about to undertake and addressing them before commencing work.

Please utilise all the safety equipment and clothing that you are provided with and when necessary, do everything reasonably practicable to eliminate hazards and control risks to your health and safety. If you do not feel safe, don't do it. Simply stop and phone us to discuss further.

Help us to help keep you safe at work!

FURTHER INFORMATION:

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