

A large, curved image showing a dry, brown landscape under a cloudy sky. The ground is cracked and uneven, with a few small, sparse trees in the distance. The sky is a pale blue with soft, white clouds. The text 'Heat Stress' is overlaid in the center in a large, white, sans-serif font with a slight shadow.

# Heat Stress

## Now that summer has arrived - How does the body react to heat?

The body reacts to heat by increasing the blood flow to the skin's surface, and by sweating. This results in cooling as sweat evaporates from the body's surface and heat is carried to the surface of the body from within by the increased blood flow. Heat can also be lost by radiation and convection from the body's surface.

## Examples of a heat stress situation

Someone wearing protective clothing and performing heavy work in hot and humid conditions could be at risk of heat stress because:

- Sweat evaporation is restricted by the type of clothing and the humidity of the environment.
- Heat will be produced within the body due to the work rate and, if insufficient heat is lost, deep body temperature will rise.
- As deep body temperature rises the body reacts by increasing the amount of sweat produced, which may lead to dehydration.
- Heart rate also increases which puts additional strain on the body.
- If the body is gaining more heat than it can lose the deep body temperature will continue to rise.
- Eventually it reaches a point when the body's control mechanism itself starts to fail.
- The symptoms will worsen the longer they remain working in the same conditions.

## What are the effects of heat stress?

Heat stress can affect individuals in different ways, and some people are more susceptible to it than others.

Typical symptoms are:

- an inability to concentrate;
- muscle cramps;
- heat rash;
- severe thirst - a late symptom of heat stress;
- fainting;
- heat exhaustion - fatigue, giddiness, nausea, headache, moist skin;
- heat stroke - hot dry skin, confusion, convulsions and eventual loss of consciousness. This is the most severe disorder and can result in death if not detected at an early stage.



### What do I need to do about heat stress?

Over time people adapt to hot conditions by sweating more, and by changing their behaviour to try and cool down, e.g. increasing frequency of rest breaks, removing clothing, taking cool drinks, fanning themselves, sitting in the shade or a cool area and/or reducing their work rate. Where there is a possibility of heat stress occurring you will need to include this in the risk assessment.

### What do I need to look at in a risk assessment?

When carrying out a risk assessment, the major factors you need to consider are:

- Work rate - the harder someone works the greater the amount of body heat generated
- Working climate - this includes not just the air temperature but also humidity, air movement and working near a heat source
- Worker clothing and respiratory protective equipment - may impair the efficiency of sweating and other means of temperature regulation
- Worker's age, build and medical factors - may affect an individual's tolerance.

### How can I reduce the risks?

Remove or reduce the sources of heat where possible:

- Control the temperature using engineering solutions, e.g.
  - change the processes
  - use fans or air conditioning
  - use physical barriers that reduce exposure to radiant heat.
- Provide mechanical aids where possible to reduce the work rate.
- Regulate the length of exposure to hot environments e.g. voids and loft spaces by:
  - allowing workers to enter only when the temperature is below a set level or at cooler times of the day,
  - issuing permits to work that specify how long your workers should work in situations where there is a risk,
  - providing periodic rest breaks and rest facilities in cooler conditions.
- Prevent dehydration. Working in a hot environment causes sweating which helps keep people cool but means losing vital water that must be replaced. Water should be provided in the workplace and you should drink it frequently in small amounts before, during and after working.
- Provide personal protective equipment. Specialised personal protective clothing is available which incorporates, for example, breathable fabrics. This may help protect workers in certain hot environments. Protective clothing or respiratory protective equipment is often required when there will be exposure to some other hazard at work e.g. asbestos. This type of equipment, while protecting from the other hazard, may increase the risk of heat stress.
- Be aware of the risks of heat stress associated with their work, what symptoms to look out for, safe working practices and emergency procedures.
- Identify employees who are more susceptible to heat stress either because of an illness/condition or medication that may encourage the early onset of heat stress (e.g. pregnant women or those with heart conditions) and monitor the health of workers at risk.



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