

Guidance Note

Working in heat

Heat illness can result from working outdoors in hot weather or working where heat is generated as part of the work.

January 2010

Purpose

This Guidance Note provides practical advice for employers and employees on heat illness, related health and safety problems and actions/measures that can be taken to prevent or minimise the likelihood of heat illness.

It replaces the WorkSafe publications *Working in heat – Heat illness and other health and safety problems* (1999) and *Heat hazards in the workplace* (2001).

Background

Heat illness covers a range of medical conditions that can arise when the body is unable to properly cope with working in heat. These conditions include:

- heat stroke - a life threatening condition that requires immediate first aid and medical attention
- fainting
- heat exhaustion
- heat cramps
- rashes (also called 'prickly heat')
- heat fatigue
- worsening of pre-existing illnesses and conditions.

Signs and symptoms of heat illness include feeling sick, nauseous, dizzy or weak. Clumsiness, collapse and convulsions can also be the result of heat illness.

Employees with these signs or symptoms need to seek immediate medical attention.

The *Occupational Health and Safety Act 2004* requires employers to provide and maintain, so far as is reasonably practicable, a working environment for employees that is safe and without risks to health and safety. This applies to any risk to health and safety, including illness from working in heat.

What is the risk of heat illness occurring?

As with any other risk to health and safety, there are several factors employers need to consider when determining if there is a risk of heat illness to employees and ways to protect them.

In assessing and controlling risks, employers must consult with employees likely to be exposed to heat as well as with their health and safety representatives, if any.

Identifying heat illness hazards

Air temperature alone cannot be used to determine whether there is a risk of heat illness. The key risk factors that need to be taken into account are:

- air temperature
- humidity (in the environment or workplaces such as laundries and mines)
- radiant heat (from the sun or other sources such as furnaces and ovens)
- air movement or wind speed
- workload (nature of the work and duration)
- physical fitness of the worker (including acclimatisation and any pre-existing conditions eg overweight, heart/circulatory diseases, skin diseases or use of certain medicines)
- clothing (including protective clothing such as overalls, coveralls and suits worn during insecticide spraying).

People who work indoors and sit a lot, such as office employees, are unlikely to suffer heat illness (see 'heat discomfort').

Is there a risk of heat illness?

If there is a concern or uncertainty about heat illness occurring at work, a risk assessment may be needed. Because life threatening situations may arise and specialised measurements may be needed, the

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assessment should be carried out by a person competent in heat assessment.

The risk assessment should include an appropriate heat stress index. A commonly used and recognised index is the Wet Bulb Globe Temperature (WBGT). The WBGT takes into account air temperature, radiant heat, humidity and air movement. Adjustments are also made to take into account such things as physical workload, clothing and work organisation.

If the assessment indicates a risk of heat illness occurring, employers need to put control measures in place. Employees considered at risk due to factors such as pre-existing conditions should be assessed by a doctor.

Preventing heat illness

Engineering type controls are an effective way of preventing or minimising heat illness. Examples include:

- increasing air movement using fans
- installing shade cloth to reduce radiant heat from the sun
- installing shields or barriers to reduce radiant heat from sources such as furnaces
- removing heated air or steam from hot processes using local exhaust ventilation
- installing air conditioners or coolers to reduce air temperature and generate air movement
- locating hot processes away from people
- insulating/enclosing hot processes or plant
- isolating employees from the hot process by locating them in air conditioned control rooms.

The risk can also be reduced by reducing workload. Options to reduce the workload include;

- rescheduling work so the hot tasks are performed during the cooler part of the day
- wearing light clothing that still provides adequate protection
- reducing the time spent doing hot tasks (eg job rotation)
- arranging for more employees to do the job
- providing extra rest breaks in a cool area

- using mechanical aids to reduce physical exertion.

Other measures for controlling heat illness include:

- keeping people away from hot processes
- allowing employees to acclimatise
- providing cool drinking water near the work site. During hot weather, employees should be encouraged to drink a cup of water (about 200 mL) every 15 to 20 minutes
- providing personal protective equipment (PPE) such as reflective aprons and face shields for reducing exposure to radiant heat. Outdoor workers should be provided with protection against ultraviolet exposure, such as wide brim hat, loose fitting, collared shirt and long pants, sunglasses and sunscreen
- providing employees with information, instruction and training on recognising heat-related illness and on first aid. Adequate supervision of employees will also be required
- providing first aid facilities and access to medical help.

If symptoms occur, employees need to rest in a cool, well-ventilated area and drink cool fluids. If symptoms do not reduce quickly, seek medical help.

Employers should plan ahead and ensure all the necessary measures for preventing heat illness can be implemented when hot weather is predicted.

Related health and safety problems

Apart from heat illness, hot working conditions may either contribute or cause other health and safety problems, for example:

- loss of grip while handling tools, objects and controls due to sweaty hands
- slips, trips and falls due to fainting or fatigue
- errors/mistakes due to heat fatigue
- not following safe work procedures or cutting corners due to fatigue and/or discomfort
- not using PPE due to discomfort
- burns from contact with hot surfaces or substances.

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Heat discomfort

Heat discomfort is what many people feel when it is hot. It is not a medical condition like heat illness and therefore is not considered a risk to health.

People who work in office type environments and who do very little physical work are unlikely to be at risk of suffering heat illness. What they experience as a result of higher temperature and increased humidity is likely to be heat discomfort.

Heat discomfort can generally be managed by:

- increasing air movement
- providing access to cool water
- wearing suitable light, loose fitting clothing.

Thermal comfort is subjective, but generally, conditions considered comfortable for people working indoors and doing light work are:

- air temperature (dry bulb temperature) 23 to 26 deg C
- relative humidity 30 to 60 per cent

More information

For guidance on working in specific hot conditions, refer to these WorkSafe publications:

Compliance Code- Foundries

Guidance Note – Sun protection for construction and other outdoor workers

Further Information

WorkSafe Advisory Service

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