

Workplace Health and Safety Queensland

SAFETY ALERT

Heat stress in outdoor workers

Purpose

This safety alert highlights the hazard of heat stress for outdoor workers during summer following the death of a German backpacker working on a farm in the Wide Bay area.

Background

Heat stress occurs when heat is absorbed from the environment faster than the body can get rid of it. Several factors may contribute to heat stress, such as the type of work activity, the surrounding air temperature/humidity level, and the physical condition of the individual (he/she may be new to the job or new to Queensland).

Our bodies maintain a fairly constant internal temperature even though they may be exposed to varying environmental temperatures.

To keep internal body temperatures within safe limits in hot conditions, the body has to get rid of excess heat - and it does this by evaporating sweat and varying the blood flow to the skin. These responses are controlled by the brain and usually occur when the blood exceeds 37 degrees centigrade.

Landholders must ensure that they provide sufficient information and care for their workers (including casual backpackers).

Types of heat related illnesses

Heat cramps are painful muscle cramps that can occur on their own or with other heat-related illness such as heat exhaustion. Lay the person in the shade, remove outer clothing, provide cool water and fan vigorously to increase evaporation.

Heat exhaustion is a serious condition that can develop into heat stroke. It is sometimes suffered by people new to Queensland's hot climate. A person with heat exhaustion may complain of weakness, nausea and/or "giddiness". The person may look pale and be breathless. The skin is usually wet from sweating.

Lay the person in the shade, remove outer clothing, provide cool water and fan vigorously to increase evaporation.

Heat stroke is a medical emergency, caused by a rise in core body temperature. A person suffering heat stroke becomes confused, and may stagger or collapse. The skin may be either dry or wet.

Call an ambulance and apply urgent first aid. Remove outer clothing, wet the skin and fan vigorously to increase evaporation.

Prickly heat is an intense, itchy red skin rash. It is caused by a blockage of the sweat ducts from prolonged wetting of the skin. Treat by keeping the skin cool and dry, wearing suitable clothing and avoiding hot work.

Heat fainting occurs when blood vessels (particularly in the legs) dilate in order to increase heat transfer to the skin and cause reduced return blood flow to the heart. This response temporarily reduces blood flow to the brain, which can cause a person to faint.

If a person faints, lay him/her in the shade, remove outer clothing, provide cool water and fan vigorously to increase evaporation.

Factors that may contribute to heat stress

- inadequate cooling off or rest periods
- insufficient water consumption
- climatic conditions (such as low air movement, high humidity levels and high air temperature)
- inappropriate clothing
- individual factors that may cause dehydration (such as poor diet, vomiting, diarrhoea or alcohol and caffeine consumption)
- individual medical conditions that may cause heat stress (such as heart problems, diabetes or hypertension)
- individual medication that may affect the body's temperature regulation
- an individual's age, general physical fitness and weight.

Environmental factors

Environment and seasonal factors that can also contribute to heat problems:

- high air temperatures
- radiant heat from hot objects such as machinery or the bare earth itself
- radiant heat from working outdoors in the sun
- higher relative humidity levels
- low air movement.

Hazards

Outdoor workers undertaking tasks in the sun for a long period of time without adequate breaks, shade or water can face serious dehydration and risk of a heat-related illness and death.

This can be exacerbated when the outdoor worker spends lengthy time in the sun, has not drunk enough water, has used drugs or consumed alcohol in recent times or has not eaten an adequate breakfast.

Recommended prevention measures

It is recommended that outdoor workers:

- use sun protection – hat, sunscreen and light sun-protective clothing
- drink at least one litre of cool water an hour when working in the sun
- take breaks during the day in cool shaded areas to enable a rapid return of core temperature to normal
- acclimatise to outdoor work gradually
- have eaten during the day to ensure their energy and salt levels are maintained.
- avoid alcohol, caffeine and drugs which can increase urine output and therefore fluid loss.

Engineering controls

Various engineering controls are effective for reducing the risk of heat stress in workplaces.

Examples include:

- creating some shade structure (tarp, umbrella) or at least find a tree for outdoor workers' rest breaks
- automating or mechanising tasks that require heavy or physical activity
- reducing radiant heat emissions from hot surfaces and plant e.g. by insulation and shielding.

More information on heat stress is available from Rural fact sheet 25 [Heat stress](#).

Legislative requirements

It is the responsibility of employers to ensure they provide a safe and healthy work environment: this means workers have adequate access to amenities such as: toilets, water and shaded areas to take rest breaks.

For more information

For more information visit the Workplace Health and Safety Queensland website at: www.worksafe.qld.gov.au or call the WHS Infoline on 1300 369 915.

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