Managing the risks of working in heat

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Background

With seasonal heat already being experienced across Queensland, persons with safety and health obligations are advised to review how workers' exposure to heat is being managed to ensure risk of injury to any person resulting from operations is at an acceptable level.

If the body has to work too hard to keep cool or starts to overheat a worker begins to suffer from heat-related illness.

This is a general term to describe a range of progressive heat-related conditions including reduced concentration, dehydration, sunburn, fainting, heat rash, heat cramps, heat exhaustion, and heatstroke which can lead to death.

How can the risk be managed?

1. Identify the hazard

Whether the work is performed indoors or outdoors, heat is a hazard. Factors to consider include:

- air temperature
- humidity
- amount of air movement
- the radiant temperature of surroundings (including environment, plant and equipment)
- clothing
- physical activity (metabolic heat load)
- degree of hydration of the worker
- physical fitness of the worker (including acclimatisation and any pre-existing conditions e.g. overweight, heart/circulatory diseases, skin diseases or use of certain medicines).

2. Assess the risk

Not everyone reacts to heat in the same way. How hot a worker feels will be different in every situation, depending on the individual worker, the work they are doing and the environment in which they are working. A risk assessment will help determine the level of risk and the effectiveness of existing control measures, what action you should take to control the risk further, and how urgently you need to take action.

Most people feel comfortable when the air temperature is between 20°C and 27°C and when the relative humidity ranges from 35 to 60 per cent.

People may feel uncomfortable when air temperature or humidity is higher than this. However, it is important to note that such situations do not cause harm as long as the body can adjust and cope with the additional heat.

Medical advice may need to be sought for workers considered at risk due to factors such as pre-existing conditions or prescription medication.

A variety freely accessible assessment tools are available ranging from simple to more complex. Basic (qualitative) risk assessment options include;

> Heat stress basic calculator - Worksafe Queensland. A simple online tool for use by anyone.
> Managing the risks of working in heat - Safe Work Australia - Risk management checklist available at Appendix 2.
> Appendix 1 of A guide to managing heat stress: Developed for Use in the Australian Environment - DiCorleto et al, 2013

A more comprehensive tool (3 level approach) to identify heat stress factors at your site is available on the Australian Institute of Occupational Hygienists website.

3. Control the risk

Risk can be either controlled by modifying the environment or modifying the work. A combination of controls may be the most effective.

Examples for modifying the environment include:

- Control the source of the heat - insulate hot surfaces, cover radiant heat, use shade barriers
- Remove or dilute hot humid air, exhaust/extraction/windows/chillers

Examples for modifying the work include:

- Mechanical aids and automated equipment where possible - cranes, forklifts, earthmoving equipment
- Work indoors or shaded areas
- Provide shelter, refuges close to work to escape a hot environment
- Scheduling of work, work-rest intervals
- Remove protective clothing at break time
- Drink sufficient water to stay hydrated, provide easy access to cool drinking water, small volumes as frequently as possible, schedule drink roster
- Schedule heavy/strenuous work for cooler times in the day
- Modify targets or work rates to reduce physical exertion
- Modify work clothes to cooler more breathable clothing
- Buddy system, no working alone, if required then regular checks, access to help
- Establish work-rest schedules, encourage workers to pace themselves to cater for individuals needs
- Look out for each other and train workers to identify heat-related illness symptoms

If there is a risk it must be controlled. Advice may be sought from an occupational hygienist to perform a professional risk assessment and devise a management plan for your site.

4. Review the control measures

Control measures must be reviewed to ensure are working as planned and do not introduce new uncontrolled risks. E.g. Use of a fan for cooling may expose the worker to increased respirable dust levels.

Are the available controls used by workers when needed? Is there a better control that could be reasonably practicably implemented, are the controls effective?

5. Respond to a heat-related illness

First aid can effective in the early stages of a heat-related illness. However, always seek medical advice. If a worker is experiencing severe heat exhaustion or heat stroke, call an ambulance immediately, and perform first aid until the ambulance arrives.

References and further information

AIOH Nov 2013, A guide to managing heat stress: developed for use in the Australian environment
Bureau of Meteorology (BOM), Heatwave Service for Australia
Queensland Government, Mining and Quarrying Safety and Health Regulation 2017 s143
Safe Work Australia, Managing the risks of working in heat
Safe Work Queensland, Heat Stress basic calculator

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