

WHS-PRO-030 Managing the Risk of Heat-Related Illness Procedure

Intent

This Procedure has been developed to detail how the risk of heat-related illness is managed at James Cook University (JCU, the University).

This Procedure addresses Higher Education Standards Framework section 2.3 (4): A safe environment is promoted and fostered, including by advising students and staff on actions they can take to enhance safety and security on campus and online.

Scope

This Procedure applies to all University staff, students (including Higher Degree by Research candidates) and Affiliates involved in JCU related activities.

This Procedure does not apply to the Singapore or Brisbane campuses, or to JCU Controlled Entities.

Definitions

Term	Definition
Affiliate	Is a person (other than a staff member or student, including Higher Degree by Research candidates) who is affiliated with JCU by letter of appointment or invitation to work, research or study at the University for a particular activity and typically for a prescribed timeframe and who is bound to comply with the University's policies during that period (e.g., visiting scholars, adjuncts and volunteers).
Heat-related illness	A general term to describe a range of progressive heat-related conditions caused by the body working too hard to keep cool or overheating, including but not limited to dehydration, heat rash, heat cramps and heat stroke.
Heat stress	The total heat load on the body from all sources including: • ambient air temperature • radiant heat from other sources (e.g., vehicles, equipment and hot-work processes) • air movement • relative humidity • individual task requirements such as a need to wear a respirator or multiple layers of clothing • metabolic heat produced by the body because of physical activity.
Officer	Under the <i>Work Health and Safety Act 2011 (the Act)</i> An Officer is a person who has the capacity to significantly affect corporations financial standing.
Reasonably Practicable	Means able to be done to ensure health and safety, taking into account and weighing up all relevant matters including: • the likelihood of the hazard or the risk concerned occurring; • the degree of harm that might result from the hazard or the risk;

	• what the person concerned knows, or ought reasonably to know, about the hazard or risk, and ways of eliminating or minimising the risk; • the availability and suitability of ways to eliminate or minimise the risk; • after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.
Supervisor	Any person who is responsible for the allocation of tasks to staff or Affiliates and/or the oversight of all JCU students during teaching and/or learning activities including field trips.

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Introduction

Working in heat can be hazardous and can cause illness. The human body needs to maintain a body temperature of approximately 37°C. If the body has to work too hard to keep cool or starts to overheat a person will begin to suffer from heat-related illness. Heat-related illness is a general term to describe a range of progressive heat-related conditions including dehydration, fainting, heat rash, heat cramps, heat exhaustion, and heat stroke. Heat can be a hazard at JCU during indoor, outdoor and off campus work.

The most effective way to manage heat risks are:

- Scheduling work tasks to suit the conditions (including break schedules);
- Monitoring the environmental and people conditions;
- Maintaining adequate levels of hydration;
- Educating staff, students and Affiliates on heat management strategies and heat-related illness; and
- Identifying heat illness signs/symptoms early and taking immediate action.

Procedure

1 Duty, Obligations and Responsibilities

1.1 James Cook University

JCU, as a Person Conducting a Business or Undertaking (PCBU), has a primary duty under the WHS Act to ensure health and safety of staff, students and Affiliates. To fulfil this duty, JCU shall eliminate heat-related illness risks, so far as is reasonably practicable and, if it is not reasonably practicable to do so, to minimise those risks so far as is reasonably practicable.

1.2 Officer

An Officer of JCU has a duty under the Act to exercise due diligence to ensure JCU fulfils its health and safety obligations under the Act. To satisfy this duty, Officers shall:

- Understand the hazards and risks associated with the working in heat for the operations under their control;
- Allocate and use appropriate resources and processes to eliminate or minimise health and safety risks arising from the operations; and
- Ensure that appropriate processes are in place to receive information on and respond promptly to heat-related incidents, hazards and risks.

1.3 Supervisor

For the purpose of this procedure, the term Supervisor refers to the person allocating tasks and providing oversight to others. Supervisors of students, staff and Affiliates are responsible for:

- Assessing the heat risk in consultation with team members as part of job planning;
- Providing oversight of staff, students and Affiliates under their control who are working in the heat;
- Increasing on-site supervision as the heat risk level increases;
- Identifying heat risk controls and sourcing resourcing for heat risk controls; and
- Ensuring all staff, students and Affiliates are trained in managing heat-related risk as required by this procedure and relevant to the role in the work.

1.4 Staff, Students and Affiliates

Staff, students and Affiliates shall follow the requirements outlined in this procedure to effectively manage heat-related illness risks, which may arise out of the conduct of the University's activities. In practice, this means:

- Reporting heat hazards when identified;
- Complying with reasonable instructions, as far as they are reasonable able;
- Participating in the heat risk management processes when required;
- Attending heat risk management training when required;

- Communicating any personal heat-related risk factors to their Supervisor and working with the Supervisor to manage their personal risk;
- Monitoring their own and team members health for symptoms of heat-related illness and responding appropriately; and
- Complying with all risk controls that have been implemented to prevent or minimise the risk of heat-related incidents and illnesses.

2 Managing the risks of heat-related illness

Heat-related illnesses can occur when the work environment, task or individual's health prevents the body's cooling mechanisms from working properly.

2.1 Identify and assess the heat risk

During the planning phase of any JCU activity, the activity Supervisor is required to assess all potential risks connected to the activity, including the risk of heat-related illnesses.

Key determinants of heat-related illness risks include:

- Previous experience of discomfort or signs of heat-related illnesses by personnel completing the activity;
- Working outdoors in known heat risk conditions including high temperature, elevated humidity, direct sunlight where the participants are engaging in physically demanding tasks, wearing heavy or non-breathable clothing, or there is a lack of access to shade and rest areas;
- Working indoors where there is insufficient airflow, high radiant heat sources or restricted/confined spaces; or
- During Bureau of Meteorology (BOM) heat warning periods.

The most common JCU activities where staff, students and Affiliates may be exposed to heat-related illness risks include:

- Field trips;
- Outdoor sports and physical exercise classes;
- Outdoor laboratories, events, workshops, campus tours;
- Working in non-airconditioned plant rooms, ceiling spaces, sheds and workshops;
- Student placements involving outdoor work; and
- Construction and maintenance work.

Individual factors that should also be considered include:

- Unacclimatised staff, students and Affiliates – e.g. recent arrival from a different climate, changes to type physical nature of work activities e.g. transitioning from office work to an outdoor project / research work, or individuals returning to work after a period of absence;
- Poor general health;
- Body weight (being overweight or obese can make it more difficult to cope with heat);
- Age (particularly for people about 45 years or older);
- A low level of fitness will make people more susceptible to feeling the extremes of heat;
- Certain prescription and illicit drug use; or
- Medical conditions – people with conditions such as heart disease, high blood pressure, pregnancy, respiratory disease and diabetes may need to take special precautions. People with some types of skin diseases and rashes may be more susceptible to heat.

A stand-alone heat risk assessment is not required. Heat risks should be incorporated into existing job planning risk assessments. Examples of Riskware risk assessments required by other procedures that should consider inclusion of heat-related illness risks include:

- Field trips;
- Undergraduate subjects involving outdoor activities;
- Research projects; or
- Construction and maintenance projects / work.

When assessing the heat risk, the activity Supervisor in consultation with their team shall consider the following:

- Are ambient conditions hot, with high humidity?
- How often can the team take breaks somewhere cool?
- Is there air movement or breeze?
- Is the work intense or long (high physical exertion)?

- Consult directly with the team to determine physical fitness and ability to acclimatise.
- Do team members wear hot clothing (including Personal Protective Equipment (PPE))?
- Are the team members qualified, trained and experienced?
- Do team members have medical conditions or take medication which affects heat regulation (if disclosed)?
- Is there cool drinking water or electrolyte on hand?
- Do team members have a good understanding of heat risks and management of these risks?
- Heat-related illness emergency response processes specific to the location of the activity (e.g. on campus emergency response will include JCU security, field work response may require a trained first aider to be part of the team and suitable equipment to quickly lower core body temperature).

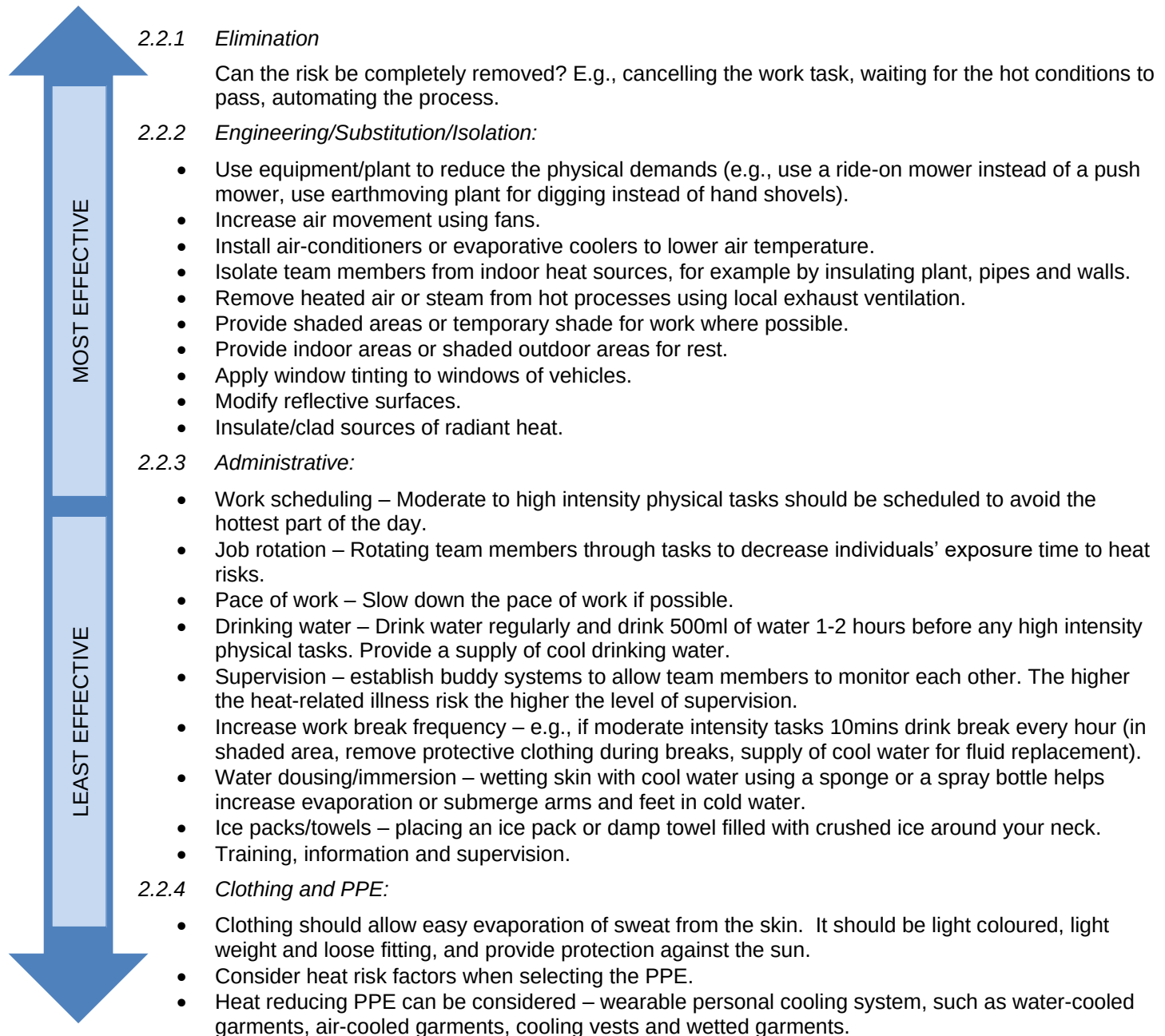
Tools to assist in assessing the risks:

- Heat stress tools can be used, these tools however are not an indication of whether the work can proceed or not proceed. The tools provide an indication of the level of risk, suggesting that control is required. The higher the risk the more controls that should be used to reduce the potential for heat stress to occur.
- Examples can be found at:
 - [Sports Medicine Australia Extreme Heat Policy](#)
 - [Worksafe Work Health and Safety eTools Heat Stress \(Basic\) Calculator](#)

2.2 Control the heat risk

Activity Supervisors, in conjunction with their team, shall consider reasonably practicable controls to eliminate or minimise the risks associated with working in the heat. Any combination of the controls below can be used to manage the risk.

A single 'stop work' temperature cannot account for all the factors that make working in heat hazardous.



Individual controls:

- Hydration:
 - Drink regularly. NOTE: To encourage drinking keep fluids within arm's reach, at the temperature that the team member prefers. Most people prefer cool or cold fluids when working in the heat. Water is recommended, however flavour can be used to break monotony (to enhance consumption).
 - Ensure regular food breaks to replace electrolytes. Food can be more effective than electrolyte drinks.
 - Use urine chart to monitor hydration throughout the day.
- Medical conditions:
 - Encourage team members to advise Supervisors of any pre-existing medical conditions that may increase their individual risk of heat-related illnesses.
- Acclimatisation:

- Acclimatisation means that the body is starting to adapt to heat. Every person is different and will acclimatise at different rates. Therefore, those from colder climates who may not be acclimatised should be closely monitored for signs and symptoms of heat illness in addition to the above controls.

2.3 Review the heat risk controls

The team should continually review the controls implemented to determine if:

- They are effective in reducing the heat risk;
- They have introduced new hazards that were not captured during the initial risk assessment; and
- They are easy to implement and practical for the team.

3 Information and Awareness

Any staff, students and Affiliates who may be exposed to the risk of heat-related illness shall be provided with the relevant level of information to enable them to manage the risk. This information may be delivered through a pre-start meeting, during the development of the risk assessment or via formal training processes. It is the responsibility of the activity Supervisor to determine and coordinate any information/awareness requirements for their team.

The level of information/training will be dependent on the activity risks and the person's role in the activity. Consider including the relevant points from the list below:

- identify and report hazards associated with heat and heat-related illness
- understand how to prevent heat-related illness
- recognise symptoms and signs of heat-related illness in themselves and others
- call for assistance if necessary
- look out for each other's wellbeing
- modify work intensity and take more regular breaks when working in heat
- drink sufficient water to stay hydrated
- recognise the dangers of diuretic drinks (i.e., drinks that increase the amount of urine you produce and rid the body of excess water such as coffee)
- be aware of individual risk factors
- understand acclimatisation
- recognise the potential dangers associated with the effects of alcohol and/or drugs when working in heat
- awareness of the potential dangers associated with the effects of some prescribed medications and the importance of medication risks with their treating health professional.

4 Warning signs and when to act

In hot conditions, a healthy person will feel hot, sweaty and may have increased respiration (breathing). These symptoms are part of the body's normal responses to regulating heat.

It is important for each person to continually monitor their own and their other team members symptoms. Early intervention is important in managing heat related illnesses.

Self-monitor early warning symptoms:

- Thirsty
- Dry lips and tongue
- Slowed mental function/low performance
- Reduced or dark urine

If you have any or all these symptoms do something about it immediately.

Act: Drink water and cool down.

What to look for when monitoring others:

- Inability to continue the activity
- High body temperature
- Dizziness and faintness
- Nausea, vomiting or diarrhea
- Pale skin and other signs of shock
- Dry skin
- Poor muscle control or weakness
- Decreasing levels of consciousness, confusion or seizures

The lack of sweating is a sign of serious illness, but only seen in a proportion of the more serious cases.

Refer to section 5 for the type of action to take depending on the symptoms.

5 First Aid for heat-related illnesses

Table 1 First Aid for heat-related illness

Symptoms		First Aid	Urgency
Heat rash	+ Itchy rash with small raised red spots on the face, neck, back, chest or thighs.	+ Move to a cooler, less humid environment. + Keep the affected area dry and remove unnecessary clothing, including PPE. + Apply a cold compress.	Seek medical advice if symptoms don't improve
Dehydration	+ Mild to severe thirst (remember that thirst is satisfied before fluid loss is fully replaced). + Dry lips and tongue. + Slowed mental function and lowered performance. + Reduced or dark urine output.	+ Drink water. Avoid caffeinated, carbonated and alcoholic drinks, and salt tablets. + Loosen tight clothing and remove unnecessary clothing, including PPE. + In cases of extreme heat or dehydration, replace electrolytes.	Seek medical advice if symptoms don't improve or are severe.
Heat Cramps	+ Painful and often incapacitating cramps in muscles, particularly when undertaking demanding physical work.	+ Stop activity and rest quietly in a cool place until recovered. + Eat food or if unable to eat, drink an electrolyte solution.	Seek medical advice if symptoms don't improve
Fainting	+ Fainting (heat syncope) can occur while standing or rising from a sitting position.	+ Lie the patient flat immediately with their legs slightly raised. + Do not raise the head. + Treat as for heat stroke and follow medical advice.	Seek medical advice
Heat Stroke	- Dehydration, thirst, and reduced or dark urine output. - Sweating. - The person stops sweating. - Skin can be pink, warm and dry, or cool and blue. - High body temperature above 39 C. - Weakness or fatigue. - Pounding, rapid pulse. - Headache, dizziness and visual disturbances. - Muscle cramps. - Nausea and/or vomiting. - Clumsiness or slower reaction times. - Disorientation or impaired judgement. - Tingling or numbness in fingers or toes. - Rapid or short breathing. - Rapid weak pulse or heart palpitations. - Vomiting or an unwillingness to drink. - Irritability and mental confusion. - Collapse, seizures and unconsciousness. - Cardiac arrest.	- Call 000 immediately. - If cardiac arrest occurs follow DRSABCD action plan While waiting for the ambulance: - Move the patient to a cool place with circulating air. - Loosen and remove excessive clothing, including PPE - Immerse patient in a bath of cold water (whole-body from the neck down) in a bath of cold water (preferably 1–7°) for 15 minutes. Continuously observe the patient to ensure breathing and conscious. - If immersion is not possible, use any combination of the options below: - Cool the patient by splashing cool or cold water on their skin or sponging their skin with a damp cloth. - Make a wind tunnel by suspending sheets around, not on, the patient's body. - Use a fan to direct gentle airflow over the patient's body. Fan continuously. - Apply cold packs or wrapped ice to the patient's neck, groin and armpits. - Use the Tarp Assisted Cooling with Oscillation (TACO)* method - If the patient is conscious sit them up to drink cool fluid and electrolyte solution with sugar. - Shivering will make the body temperature rise even further. If the patient starts shivering, stop cooling immediately and cover them until they stop. Once they have stopped recommence first aid treatment.	Call an ambulance immediately

* TACO (Tarp Assisted Cooling with Oscillation) method – Wrap person in a tarp filled with ice slurry (or the coolest water available) and continually oscillate the water around the person. The TACO method cools the core by 0.2°C per minute, which is twice as fast as evaporative cooling by covering the body in soaked towels. This is a practical and effective option for field work.

Related policy instruments

[Work, Health and Safety Policy](#)

[WHS-PRO-001 WHS Responsibilities Procedure](#)

[WHS-PRO-002 WHS Risk Management Procedure](#)

Other related documents and legislation

[Work Health and Safety Act 2011 \(Qld\)](#)

[Work Health and Safety Regulation 2011 \(Qld\)](#)

[Managing the work environment and facilities – Code of Practice 2021](#)

[Managing the risks of working in heat – Guidance Material October 2021 Safe Work Australia](#)

<https://www.worksafe.qld.gov.au/safety-and-prevention/hazards/hazardous-exposures/heat-stress>

Schedules/Appendices

Nil

Administration

NOTE: Printed copies of this procedure are uncontrolled, and currency can only be assured at the time of printing.

Approval Details

Policy Domain	University Management
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Revision History

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Contact person	WHS Advisor