



Guidelines To Prevent Heat Stress

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1. Introduction

Heat stress can kill

Heat stress is an increasing phenomenon, particularly in southern jurisdictions, where severe weather patterns and heat waves are linked to the effects of climate change.

During the 20th century, heat, particularly heat waves have probably caused more deaths in Australia than any other natural hazard. In the period between 1803 and 1992, at least 4287 died in Australia as a direct result of heat waves.¹ They are also one of the least studied natural hazards. Heat can also cause expensive livestock and crop losses and damage to roads, railways, bridges etc.

Heat stress is best described as excessive exposure to heat that may lead to a number of heat conditions ranging from mild conditions, such as prickly heat to more life threatening conditions, like heat stroke. People suffer from heat stress when the body absorbs more heat than it can dispel. Prompt action will avoid the serious or even fatal consequences of fully developed heat stroke.

The groups most at risk of heat stress are young children; the elderly; those with alcohol, weight, or health problems; and people on medications which have a drying effect, or reduce perspiration. Seek medical advice in all such cases.

All parts of the Northern Territory can experience temperatures in excess of 30⁰C. In the Top End during the Wet Season, this is combined with high levels of humidity and in Central Australia, temperatures may exceed 40⁰C.

Anyone can fall victim to heat stress through a lack of hydration, over exertion or being over exposed to the sun. Acclimatisation plays an important role in protecting healthy people from heat stress and therefore new residents and visitors to the NT are particularly vulnerable.

These Guidelines provide information on how to overcome heat stress, particularly the effects of heat stroke.

¹ Geoscience Australia. Australian Government. Commonwealth of Australia. Last updated 21 July 2010. Accessed 27 March 2010. Available from: <http://www.ga.gov.au/hazards/severe-weather/reports.html>

2. Types of Heat Stress related illness

Heat stress represents a continuum of disorders from minor syndromes such as heat rash, heat cramps, heat syncope (fainting), heat exhaustion to the severely life-threatening disorder known as heat stroke.

Heat Rash – an itchy and painful skin rash, caused by blockages of the sweat ducts and an increase in pressure of the sweat ducts.

Heat cramps – painful cramps affecting various muscles or muscle groups and parts of the body.

Heat syncope (Fainting) – the blood vessels in a person's extremities dilate to increase heat transfer to the skin, causing reduced blood flow to the heart and brain, leading to a person fainting.

Symptoms

- Heavy sweating, tired and thirsty
- Moist cool skin
- Irritability
- Loss of appetite
- Nausea
- Prickly heat rash
- Muscle spasms / twitching
- Painful muscle cramps (abdomen, arms and legs)

Treatment (First Aid)

- Move to a cool place (e.g. cool shady area, air conditioned environment)
- Lie down with legs supported and slightly elevated
- Have a cool shower or bath
- Drink more water
- Massage muscles gently to ease spasms, or firmly if cramped, then apply ice packs and drink glucose (e.g. diluted cordial)
- Additional salt treatment is not recommended

Heat Exhaustion

A serious heat illness which may progress to heat stroke if not properly treated. It is most common in non-acclimatised individuals.

Symptoms

- Profuse sweating
- Cold, clammy, pale skin
- Fatigue, weakness and restlessness
- Headache
- Dizziness
- Nausea and /or vomiting
- Weak, but rapid pulse
- Normal temperature
- Faintness

Treatment (First Aid)

- Move person to a cool place (e.g. cool shady area, air conditioned environment)
- Lay person down with legs supported and slightly elevated
- Loosen clothing
- Cool person e.g. apply cool wet cloths to person's head and body, fan them
- Give sips of cool water
- If vomiting continues, seek medical assistance immediately

Heat Stroke (Hyperthermia)

THIS IS A MEDICAL EMERGENCY – Do not delay, call 000 immediately.

Heat stroke is the most serious heat-related illness. It occurs when the body is unable to control its temperature. The body's temperature rise rapidly to dangerous levels and internal systems start to shut down, leading to permanent disability and death if emergency treatment is not provided.

Symptoms

- High body temperature (more than 40°C)
- Altered mental state, e.g. confusion, disorientation, rapid development of unconsciousness
- Dry skin (though this is not often present)
- Dry swollen tongue
- Rapid, strong pulse at first, then weaker
- Headache
- Dizziness
- Nausea
- Fits/seizures, coma

Treatment (First Aid)

Seek medical assistance urgently.

In the meantime:

- Move person to a cool place (e.g. shady area, air conditioned environment).
- Lay person down with legs supported and slightly elevated
- Remove clothing
- Cool person rapidly:
 - Apply ice packs to the person's groin and armpits
 - Also, apply cool water, or wrap in a wet sheet and fan them (keep wet)
- If person is unconscious, check person's airway, breathing and pulse:
 - If person is in cardiac arrest, begin CPR (Cardio-Pulmonary Resuscitation)
 - If person is breathing and has a pulse, position unconscious person on their side and clear their airway
- Do not give sips of cold water

3. Guidelines to avoid heat stress

When the body is exposed to elevated temperatures, the human body relies on sweating to lose heat. Evaporation through sweating is important to cool the body. Therefore in order to lose body heat, a person must be able to sweat.

Prevention is the best way to manage heat stress. Suggestions to prevent heat stress include:

- **Drink plenty of fluids:**
 - Drink water to the point where your urine is light yellow colour. This generally means drinking two to three litres of water per day but may be more depending on heat, humidity and physical activity. Drinking too much water (e.g. over 10 litres) can be dangerous too so always check to ensure that your urine remains a light yellow colour
 - Rehydration is best with water and not carbonated drinks
 - Avoid alcohol and caffeinated drinks during exercise as it increases your risk of hyperthermia
- **Acclimatisation:** It takes weeks to acclimatise to a hotter climate. Avoid strenuous activities during this period
- **Light Clothing:** To help evaporation of sweat, wear lightweight, light-coloured, loose, porous clothes and a wide-brimmed hat
- **Protect yourself outside:** Use strong sunscreen as sunburn limits the body's ability to cope with heat
- Do not take salt tablets unless prescribed by a doctor
- **Stay cool indoors:**
 - Keep your home cool with curtains, shutters, or awnings on the sunny sides and leave windows open at night
 - If you don't have air conditioning, use fans and damp towels etc. to stay cool
 - Have frequent cool showers
- **Avoid exposure to heat:**
 - Minimise exposure to direct sunlight if possible
 - Spend as much time as possible in air-conditioned buildings (e.g. shopping centres, galleries, museums etc.) if it gets too hot outside or at home
- **Schedule outdoor activities carefully:** Try to restrict your outdoor activities to cooler parts of the day (in the mornings and evenings)
- **Do not leave children (or pets) in parked vehicles:** The temperature in cars can heat up to dangerous levels very quickly, even in cool temperatures or with the windows cracked open
- **Seek medical attention** if you suffer chronic illness or feel unwell
- **Protect your pets:** Give animals access to shade and plenty of water

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Useful Websites:

<http://www.worksafe.nt.gov.au/corporate/documents/15.04.23.pdf>

<http://www.nt.gov.au/pfes/index.cfm?fuseaction=page&p=306#>