

Work environment – Rural safety

15.04.23

Heat stress >

This bulletin outlines some simple safety guidelines for those working in the rural industry and is one of a series on Rural Industry safety.

General

Heat stress is excessive exposure to heat that may lead to a number of heat illnesses ranging from mild (prickly heat) to life-threatening (heat stroke).

At any time our body temperature is a balance between heat generated (internally) or taken in (from the environment) and heat lost. It is important to keep this balance and avoid a rise in core body temperature which may lead to heat illnesses.

Therefore if we increase heat production by heavy or intensive outdoor work or staying outdoors for long periods in high temperatures, we must make sure we lose body heat.



► **To lose body heat, you must be able to sweat.**

Heat loss

When the temperature reaches the mid-30s and beyond, the body relies on sweating to lose heat. It is important to allow evaporation to happen because unevaporated sweat is not effective in cooling the body.

In rural and remote Queensland's high temperature and high humidity, this can be difficult. There can also be a problem if you are wearing protective clothing and your sweat cannot evaporate underneath it.

Evaporation

To help evaporation of sweat:

- Wear as little clothing as possible – however balance this against sun protection.
- Clothing should be light, preferably cotton and able to “breathe”.
- Take regular breaks to cool down – length of breaks depend on the intensity or heaviness of the work, the temperature and humidity, air movement and clothing.
- If wearing protective clothing, remove at regular intervals in the shade to allow your body sweat to evaporate.

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Heat illnesses

Prickly Heat - This is an itchy and painful skin rash caused by blockage of the sweat ducts and an increase in pressure in the ducts.

**► Treatment for Prickly Heat:
Keep the rash cool and dry, stop hot work until it has settled down.**

Heat Fainting - Blood vessels in extremities dilate to increase heat transfer to the skin causing reduced return blood flow to heart. In turn this temporarily reduces the blood flow to the brain and the person faints.

Heat Cramps - These are painful muscle cramps of complex origin.

Heat Exhaustion - A serious heat illness which may progress to heat stroke if not promptly treated. Most common in non-acclimatised individuals.

Person complains of weakness and/or nausea and/or giddiness and appears pale, breathless and exhausted. Skin is usually moist (sweating).

**► Treatment for Fainting, Cramps, Exhaustion:
Lie person in shade, provide cool water and fan manually to cool
core body temperature.**

Heat Stroke - A true medical emergency with a high fatality rate in untreated cases. This is caused by a rise in body core temperature to dangerous levels of 41°C and higher.

The person becomes confused, staggers and may collapse. The skin may be moist or dry (no sweating, in which case cooling does not occur).

Anyone doing hot work who exhibits confusion and odd behaviour should be treated initially as having heat stroke.

**► Treatment for Heat Stroke:
Urgent first aid required.
Remove clothing, wet skin and fan to increase evaporation.
Seek medical assistance.
These cases require intravenous fluids urgently.**

To avoid heat stress, the golden rule for rural workers in hot conditions who may be feeling weak or faint is to stop work immediately and cool down.

Guidelines to prevent heat stress:

- **Drink at least 2 litres of cool water a day, more if heavy sweating.** Use cool water jugs, canvas water bags and water coolers indoors.

- **Acclimatisation.** Introduce new workers gradually to hot work. The body needs time to learn to lose heat efficiently.
- **Provide shade and air movement (fans) where possible.** Shade reduces the radiant heat load from sun, fans increase sweat evaporation.
- **Schedule hot jobs for cooler parts of the day.** For instance, consider starting heavy work very early in the day and finishing by 10 am before temperatures begin to soar.
- **Provide cool rest areas where possible – fans, air conditioning.** These enable a rapid return of core temperature to normal. Air conditioning is particularly useful because it lowers both temperature and humidity.
- **Wear lightest clothing which provides sun protection.** A balance is needed between clothing for sun protection, including a hat, and clothing which allows heat loss through evaporation.
- **Diet.** For most people the diet contains adequate salt. Those on low salt diet or acclimatising may need some salt supplementation such as sports drinks. Excessive salt, eg salt tablets, can worsen dehydration.
- **Alcohol.** Avoid drinking alcohol during the day. Alcohol increases urine output and therefore fluid loss. Increase fluid intake the next day after drinking alcohol to reduce dehydration.
- **Be careful where protective clothing is required.** Protective clothing such as plastic overalls, gloves and respirators allow no evaporation. In hot conditions, serious heat illness can occur rapidly. If the job is essential, choose a cool time of the day and rotate workers between work and cool rest areas.

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