

HEAT FACTSHEET

THE PROBLEM

Working in hot conditions can result in a number of adverse health effects - ranging from discomfort to serious illness, which are generally grouped together as heat stress. In extreme circumstances this can be fatal.

A number of factors affect the impact of heat on the body. These are:

ENVIRONMENTAL FACTORS

- Air temperature, humidity and air movement
- Radiant temperature in the workplace
- Extreme climatic conditions

PERSONAL FACTORS

- Clothing worn
- Level of working activity
- Level of fluid loss and replacement, affecting water and salt balance
- Acclimatisation
- Factors such as use of certain medications, medical conditions, physical fitness, obesity, pregnancy

WHAT ARE THE HEALTH EFFECTS OF EXPOSURE TO HEAT?

When the body is exposed to more heat than it can cope with, this leads to heat stress. The body tries to cope mainly by evaporation - sweating. As the temperature in the work environment increases, so too does the body's temperature. This triggers sweating and a flow of blood to the skin where it can be cooled by evaporation. Excessive sweating leads to loss of water from the body, dehydration and loss of salt, resulting in potentially serious health effects.

Possible consequences of excessive heat:

1. Increase in the likelihood of accidents due to reduced concentration; slippery, sweaty palms; increase of discomfort of some personal protective gear, resulting in reduced protection and unsafe conditions, etc.
2. Skin Rashes: "prickly heat".
3. Heat Illness:
 - Heat Cramps:** Muscle spasms as a result of heavy sweating without restoring the body's salt/water balance.
 - Heat Exhaustion:** Dehydration following heavy sweating causes clammy, moist skin, weakness and fatigue, nausea, vomiting, headache and giddiness. Reduced blood flow to the brain may lead to fainting.
 - Heat Stroke:** Hot, dry skin and rapidly rising body temperature can lead to collapse, loss of consciousness, convulsions, even death.
4. Aggravation of other medical conditions and illnesses: e.g. high blood pressure or heart disease due to increased load on the heart.
5. Aggravation of the effects of other hazards: through interaction with other workplace hazards, such as noise

or exposure to toxic substances, heat can compound their effects.

6. Reproductive Disorders: may affect sperm count or the health of a foetus.

WHO IS AT RISK?

Workers in a variety of occupations may be exposed to heat stress. For example, working in any, or a combination of, the following conditions:

- outdoor workers - such as construction and building workers, gardeners, etc - particularly during summer months
- occupations where there are plant or processes which generate radiant heat. These include: bakeries, kitchens, laundries, foundries, boiler rooms, steelworks and in other manufacturing processes. Workers in these industries become "acclimatised" (used to) to these conditions to a certain extent
- occupations such as those in building and construction
- hot, stuffy, and poorly ventilated buildings
- working in vehicles

ACTION PLAN FOR SAFETY REPRESENTATIVES

Work related injuries and illnesses due to exposure to heat must be prevented primarily through elimination or modifying the workplace or systems of work. Where these measures do not adequately control the risk, it may be necessary to introduce administrative controls (for example introduction of a work-rest regime).

1. Talk to workers about heat and its effects on their health. Identify if there are any heat problems associated with their work and whether seasonal heat may be a problem. See more information on the problem, below.
2. Carry out an audit of the workplace to identify heat stress areas.
3. Negotiate a heat agreement or policy.

NEGOTIATING A HEAT AGREEMENT OR POLICY

Don't wait until summer to raise the issue with management. Begin the process of negotiating a heat agreement appropriate to your workplace now. This should be done at an OH&S Committee level, ensuring the input of all affected workers.

The agreement should consider both seasonal and work-related heat. It should include at least the following:

- All new indoor work areas to be temperature-controlled, where practicable, by air-conditioning
- Where possible, the workers' environment to be maintained in a range between 18° and 23°C
- Temperatures be kept in that range through the use of engineering controls such as:
 - Air conditioning, air circulating fans, provision of good ventilation

- Insulating or shielding sources of heat in the workplace
- Insulating the roofs and walls of the workplace
- Ducting hot exhausts outside the workplace
- Mechanising some of the tasks
- Providing air-conditioned work vehicles
- A general heat hazard audit carried out to identify and prioritise areas/processes of concern
- **For outdoor work:**
 - Establishment of “cool” areas, including air-conditioned lunch and first aid room/s
 - Providing a choice of light protective clothing and hats
 - Use of air-circulating fans
 - Use of shade cloths
- **Administrative controls:**
 - Sign posting heat stress areas
 - Acclimatisation process in heat stress area for new workers and those returning from annual/sick leave, beginning with half regular workload
 - Changing the rate of work
 - Modifying the hours of work (in consultation with the union. Check your enterprise agreement)
 - Providing lighter, alternative work
 - Rest breaks (see below)
 - Mechanising some of the work tasks (eg using power tools)
- Personal protective measures
- Investigating any incidents of heat stress
- Providing effective sunburn creams and skin protectors
- Providing constant supplies of cool drinking water. Workers should drink 100-200ml of water at frequent intervals to replace fluid lost through perspiration

REST - WORK BREAKS

The following is a suggested place to start when negotiating a rest-work regime for inclusion in a heat policy:

Duration of paid rest breaks within each hour when the temperature reaches and/or exceeds temperatures shown.

Paid rest break	Temperature
15 minutes	30°C
30 minutes	32°C
45 minutes	34°C
60 minutes	36°C

Ensure the policy is reviewed each year by the OH&S Committee.

SUMMARY FOR HEALTH & SAFETY REPRESENTATIVES

- Talk to your members about heat and its health and safety effects
- Carry out an audit of the workplace to identify heat stress areas
- Ensure the employer monitors the health and safety of workers

If you have an Occupational Health & Safety concern at your workplace, you should inform your Health & Safety Representative. An elected Health & Safety Representative has legal powers to take action regarding an ongoing known and unaddressed OH&S violation which a Delegate does not. If you do not know who your Health & Safety Representative is, or there is no Health & Safety Representative at your workplace, contact the ASU office for specific OH&S advice.

- Ensure that all incidents are reported
- Negotiate a heat policy appropriate to your workplace through your health and safety committee if you have one - don't wait until summer to raise the issue with management
- Review your policy each year

LEGAL STANDARDS

There are no regulations specifying standards for maximum temperatures in the workplace. However, employers have a duty to provide and maintain for employees, as far as is practicable, a working environment that is safe and without risks to health. This includes providing a safe system of work, information, training, supervision, and where appropriate personal protective equipment. The employer also has the duty to monitor conditions at the workplace - this includes heat.

Some workers have been able to negotiate agreements (now in either their award or enterprise agreement) on this issue.

The National Health and Medical Research Council recommends the introduction of a work-rest regime for acclimatised workers doing different types of work, at varying temperature levels, measured by a wet bulb globe thermometer.

MEASURING HEAT

An ordinary dry bulb (DB) thermometer is adequate to measure air temperature when humidity and air movement is not excessive and is often the only practical method to measure temperature.

A wet bulb globe thermometer (WBGT) measures air temperature combined with humidity levels, air movement (breeze) and radiant temperature of the surroundings. This is an internationally recognised method widely used for assessing environmental risk factors, but should only be used where a competent, qualified occupational hygienist is carrying out the monitoring.

WHERE TO GET ADDITIONAL INFORMATION:

- The ACTU Guidelines: Working in Seasonal Heat: www.actu.org.au/public/papers/heat.html
- A WorkSafe Victoria Guidance Note: Working in Heat: www.workcover.vic.gov.au
- Workplace Standards Tasmania: www.wst.tas.gov.au
- From the US Occupational Safety and Health Authority, a Heat Stress Card, which provides tips and precautions to help prevent heat-related deaths and injuries: www.osha.gov/Publications/osha3154.pdf
- The ACT Office of Regulatory Services Guidance Note: Working in Hot or Cold Environments: www.ors.act.gov.au