



Working in Seasonal Heat

Introduction

Working in seasonal heat presents particular health and safety hazards, which may be influenced by a number of risk factors.

WorkSafe Guidance Notes provide:

- ✚ some information about the hazards associated with working in seasonal heat;
- ✚ recommended measures to control the working environment in order to eliminate or reduce exposure to hot working conditions; and
- ✚ recommended actions to prevent heat stress when working in hot conditions.

The focus of these guidelines is on modifying the working environment and working arrangements in order to prevent the onset of heat stress.

What is heat stress?

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.

Workers in a variety of occupations may be exposed to heat stress. In offices the major cause of heat stress arises from working in hot, stuffy, and poorly ventilated buildings.



Risk Factors

Just how working in heat affects the body is influenced by a number of risk factors.

The more factors present, the greater the risk of heat stress.

Risk factors include:

- ✚ air temperature, air movement and humidity – while the level of air movement and humidity will affect the efficiency of bodily cooling mechanisms and levels of discomfort, high air temperature is the most significant seasonal risk factor;
- ✚ level of working activity, including number of hours worked;
- ✚ clothing worn – in particular essential protective clothing;
- ✚ level of fluid loss and replacement, affecting water and salt balance;
- ✚ sources of radiant (mechanical and occupational) heat in the workplace;
- ✚ acclimatisation – it is important to remember that people generally do not acclimatise to changeable seasonal heat, particularly heat waves; and
- ✚ personal factors – for example, use of certain medications and/or pre-existing medical conditions, level of physical fitness and obesity can affect the risk of heat stress. Pregnancy can also reduce tolerance to heat.

Health and safety effects of heat stress

When the body produces energy, by physical exertion – and/or receives energy, from an external heat source – body temperature will start to rise.

To counter the rise in body temperature, the body's cooling mechanisms automatically come into play.

These include:

- ✚ perspiration – this is an important mechanism by which the body loses heat, which is less efficient in humid conditions. and
- ✚ dilation to the blood vessels and increased blood flow to the surface of the skin in order for the blood to be cooled by the surrounding air – this is why the skin appears red when we are hot.

If, due to environmental conditions and/or the level of physical activity, these cooling mechanisms are unable to prevent body temperature from rising, and/or excessive fluid loss results in dehydration, the following risks to health and safety will occur.



Heat Illness

skin rashes, also known (felt) as “prickly heat”, often over the arms, shoulders, chest, in body creases and behind the knees. **dehydration**, can result from either excessive fluid loss through perspiration, and/or failure to drink enough fluids. Dehydration can contribute to cramps, heat exhaustion and heat stroke. Drinks or medications, which increase urine output, can increase the risk of dehydration. Feeling thirsty indicates that dehydration is already occurring. **heat cramps**, are muscle spasms indicating an imbalance of salt and water, caused by perspiration and/or adequate fluid replacement. **heat exhaustion**, indicates that body-cooling mechanisms are already overtaxed. Characterised by clammy, moist skin; weakness and fatigue; nausea; vomiting; headache; giddiness and possibly fainting – due to the dilation of blood vessels and blood pooling in the lower limbs. **heat stroke**, is a serious condition with a rapid onset. Characterised by hot, dry skin, and a rapidly rising body temperature. Can result in collapse, convulsions, loss of consciousness, and death.

It is important to note that there can be a rapid progression from heat exhaustion to heat stroke, and that the effects of severe heat stroke may be irreversible.

Employers must monitor employees for signs of heat illness, and act immediately. At the first signs of cramps or heat exhaustion, or if at any time a person reports discomfort or stress from the heat, they must be able to immediately stop work, go to a cool area, rest, have a cool drink, and receive first aid treatment if required.

The person should not resume work until they are recovered.

Increased risk of injuries

Injury rates can increase as a result of:

- slipperiness of sweaty palms
- blood pooling and fainting
- fatigue and reduced concentration

Increased effect of other OHS hazards

Hot working conditions can interact with other workplace hazards, such as noise or exposure to hazardous substances, compounding the level of discomfort and stress.



Aggravation of existing medical conditions

Working in seasonal heat can exacerbate existing medical conditions. For example, hot conditions increase the workload on the heart, so that workers with pre-existing heart problems or high blood pressure will be particularly vulnerable to the effects of working in heat.

People with kidney conditions, asthmatics and diabetics may need to take extra care.

Hot

Hot

Hot

Hot

Hot

Controlling heat hazards

Controlling the working environment

Heat stress must be treated as any other health and safety hazard.

The hierarchy of controls must form the basis of measures to reduce the hazards of heat stress.

This means that first actions must be to control the working environment and/or working arrangements in order to eliminate or reduce exposure to hot working conditions, and to protect employees from the effects of heat stress.

Where possible, indoor workplace temperatures should be kept between 18 to 26 degrees Celsius through:

- ✚ ventilation and mechanical cooling methods, such as air conditioning and/or air circulating fans;
- ✚ provision of mechanisms external to the workplace to assist in temperature control, such as planting shade trees, and the use of eaves and verandahs;
- ✚ insulating the roofs and walls of the work place;
- ✚ exhaust ducts for venting hot air from the work place.

Measuring temperature in the working environment

It is recommended that temperature in the workplace be monitored throughout the day.

Temperature should be measured as close to the worksite as is possible.

A normal, dry bulb, thermometer is recommended in these guidelines as the most convenient and satisfactory measure of seasonal temperature.

Weather forecasts and reports

Where local temperature measurement is not practicable, for example, when the employee travels between worksites, regular weather announcements from the nearest TV or radio stations can provide a guide to the local conditions.

In any case, weather forecasts would be used to plan working arrangements when hot conditions are expected.



Arrangements for working in heat

When the work environment cannot be sufficiently controlled to reduce temperature and/or humidity a number of work organisation measures, including rest breaks, should be introduced.

Work organisation measures for working in heat include:

- rotation of tasks within workplaces and between employees, so that work that is designated as 'hot' is rotated with 'cooler' tasks.
- long periods of standing should be avoided in hot conditions, due to the risk of blood pooling in the lower limbs. Tasks requiring long periods of standing should be rotated with tasks that can be performed while seated, or regular rest periods allowed.

Provision of amenities

All workplaces must have the following basic amenities:

1. Drinking water

An ongoing supply of drinking water must be readily accessible to people whenever they require it.

The water should be cooled, clean and palatable.

It is essential that people be encouraged to drink fluids regularly before, during and after working in the heat in order to prevent dehydration.

Feeling thirsty indicates that dehydration is already occurring, therefore drinking just to satisfy thirst is not enough to keep a person well hydrated.

Tea, coffee and alcohol should be avoided, as these have a diuretic effect. At least one drinking point should be provided for at least every twenty employees or part thereof.

The drinking points should be placed where they are readily accessible to all people whenever they require them.

An additional cool water supply near a hot or strenuous workstation should be provided.

Drinking water facilities, as with other eating facilities, must be separate from sanitary facilities. Labeling of drinking water supplies may be necessary in some circumstances.

Hygiene requirements must be considered, for example, supply of upward jets, clean cups, glasses and containers.

2. Rest rooms

A cool, comfortable lunch and/or rest room with temperature range between 18-26°C is recommended, and should be provided in all workplaces where hot temperatures are routinely experienced.

In mobile and/or isolated working environments, suitable alternative arrangements for lunch and rest facilities should be negotiated.

3. First aid

A first aid room with temperature range between 18-26°C s also recommended, and should be provided in all workplaces where hot temperatures are routinely experienced.

4. Rest breaks for working in heat

It is recommended that where the temperature at work exceeds 26 degrees Celsius, measures should be taken to prevent the onset of heat stress.

Rest breaks should be introduced and modified by negotiation to suit local conditions, but it must be remembered that rest breaks are important preventative measures.

It is not acceptable to wait until employees are already suffering heat stress before implementing preventative measures.

Table 1 provides a regime of recommended rest breaks for working in seasonal heat.

These are presented as a basis for negotiation.

Variations may be needed for specific industries, working conditions or circumstances, and climatic variations.

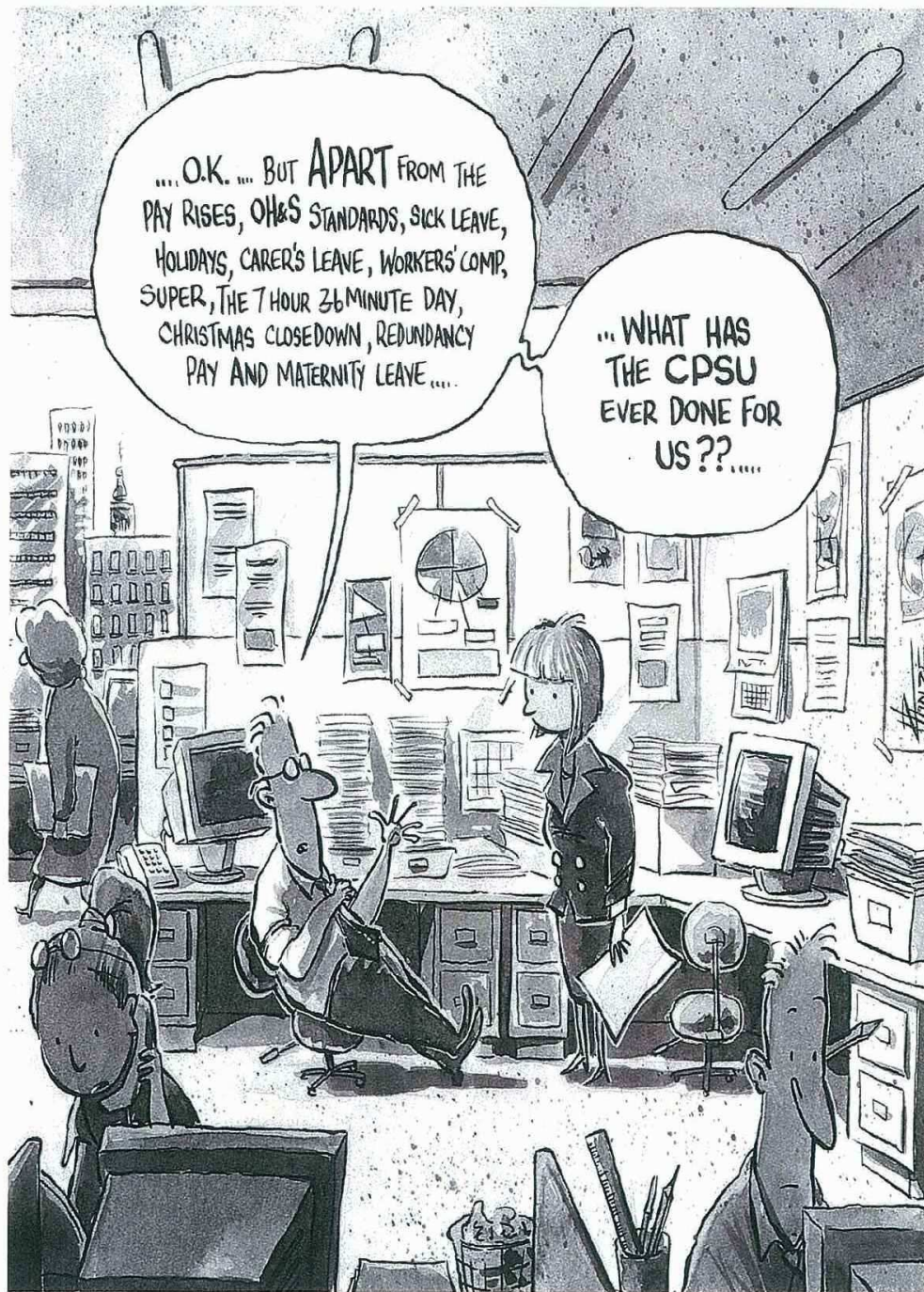
Recommended rest breaks for working in seasonal heat [table 1]

<i>Temp. Celsius</i>	<i>30 C</i>	<i>32 C</i>	<i>34 C</i>	<i>36 C</i>
<i>Duration of paid rest breaks within each hour when the temperature reaches and/or exceeds temperatures shown</i>	<i>10 minutes</i>	<i>20 minutes</i>	<i>30 minutes</i>	<i>cease working</i>



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