



TOOLBOX INFORMATION SESSION

HEAT STRESS

INTRODUCTION

The term heat stress includes a variety of different conditions that occur when the body is stressed because of overheating. In order of severity, these conditions include heat rash, heat collapse, heat cramps, heat exhaustion and heat stroke.

During this session we will talk about:

- what causes heat stress;
- the different types of heat stress;
- how we can prevent heat stress; and
- how we can treat heat stress.

WHAT CAUSES HEAT STRESS

Heat stress can occur in many different locations and is not limited to hot environmental conditions. It often occurs during hot weather, but can also occur indoors and at any time when the air temperature is high.

The main factors that cause heat stress include:

- high temperature levels;
- high humidity levels;
- low levels of air movement;
- heat sources in the area;
- physical activity carried out; and
- type of clothing worn.

Other personal factors such as your age, weight, metabolism, level of physical fitness, medical conditions such as hypertension and whether or not you have consumed alcohol, can affect your likelihood of becoming heat stressed.

WHAT ARE THE DIFFERENT TYPES OF HEAT STRESS

As we discussed earlier, there are a number of different forms of heat stress that all vary in their level of severity. We will now talk about each of these conditions so that you can recognise them in yourselves and other people.

Heat Rash

Heat rash occurs when the weather is hot and humid, and your sweat glands become blocked. It is an annoying rash that is red and bumpy in nature and is also very itchy.

Heat Collapse

Heat collapse is a condition where a person actually collapses or faints because of a reduced blood flow to the head. When the body becomes hot, the blood naturally moves to the outer most areas of the body and away from the brain. Heat collapse is often rapid and unpredictable.

Heat Cramps

Heat cramps are spasms or pains in the muscles that occur because of an imbalance in body salts. This type of imbalance may occur because of continual perspiration or a low salt intake.

A lack of water consumption is the main cause of heat cramps, as salt levels build up in the body if lost water is not replaced. They often occur in the abdomen, arms and legs.

Heat Exhaustion

Heat exhaustion is a sign that the body's cooling systems are not working properly and water and salt intakes are too low. People suffering from heat exhaustion often have symptoms such as headaches, nausea, weakness, thirst and giddiness.

Heat Stroke

The most severe form of heat stress is heat stroke. This occurs when the brain loses the ability to regulate the body's temperature and as a result the body temperature rises to a critical level.

Those with heat stroke may suffer from:

- confusion;
- irrational behaviour;
- loss of consciousness;
- convulsions;
- a lack of sweating;
- an abnormally high body temperature; and
- hot, dry skin.

If the body temperature is too high, death can result and it is therefore essential to treat heat stroke as soon as possible.

First aid experts should be called immediately to treat those suffering from heat stroke.

HOW TO PREVENT HEAT STRESS

Heat stress is a very serious condition but it can be prevented quite easily.

We will now look at a number of simple ways to prevent heat stress.

Adapt Work Schedules

A simple way to avoid heat stress is to re-schedule work so that heavier and more physical tasks are carried out during the cooler times of the day.

Reduce Heat Exposure

Providing shaded areas to work in can reduce outdoor sources of heat. Shielding indoor heat sources such as furnaces can also help to prevent heat stress.

Increase Air Flow

Increasing the flow of cool air around the body helps reduce body heat. As cool air flows past the body an exchange of heat occurs between the skin's surface and the surrounding air. Air conditioning works in this way as the room temperature is cooled to below the bodies normal temperature.

The circulation of air around the body also helps to increase the evaporation of sweat from the skin's surface.

Drink Water Frequently

Sweating is the main way our body cools itself. Drinking water frequently helps to replace water that is lost when we sweat. Drinking water also helps to ensure a balance is maintained between water and salt levels in the body.

Adapt to the Heat and Humidity

One of the best ways to avoid heat stress is to gradually adapt or acclimatise yourself to hot and humid conditions. By spending increasingly longer periods of time in the heat and humidity, your body becomes used to these conditions and you are able to slowly increase your work output. Most people can adapt to working in high temperatures and humidity within a week.

Frequent Rest Breaks

Having frequent breaks in a cool area is an excellent way to avoid heat stress. During these breaks the body's temperature can return to normal and fluid levels can be replenished.

Wear Protective Clothing

Different types of clothing can be used to prevent heat stress. In most situations, clothing which is loose fitting will help maintain a normal body temperature. Fabrics which “breathe” well, such as cotton, will also help avoid heat stress. For some specific tasks, you might also use specially designed suits that are cooled by air or ice.

Dry clothes will also help sweat to evaporate, so the skin is kept dry and the chance of heat rash is reduced.

Monitor Yourself and Your Environment

Your most important defence mechanism for preventing heat stress is your ability to monitor yourself and the environment you are in. It is essential that you take careful note of any fatigue, discomfort or other symptoms of heat stress that may occur and counteract these, if possible.

HOW DO WE TREAT HEAT STRESS

Treatment varies only slightly for each of the different forms of heat stress. As a general guide, it is important to remove the person from the source of heat, replenish the body’s fluids and cool the body as quickly as possible.

In most cases, heat rash will disappear when the person with the rash returns to a cool environment. However, if the rash becomes infected it may be necessary to consult a pharmacist or doctor.

Those suffering from heat collapse, heat cramps and heat exhaustion should all be treated in a similar manner. This treatment should include:

- removing the patient from the hot environment;
- allowing the patient to rest in a cool place;
- circulating the air around the patient;
- spraying the patient with water;
- increasing the patient’s water intake; and
- loosening the patient’s clothing.

Heat cramps should also be treated by massaging the patient’s cramp.

When treating heat exhaustion, medical or nursing assistance should be obtained.

A person suffering from heat stroke requires medical attention urgently and emergency services should be contacted as soon as possible. This is a life threatening condition and the individual’s body needs to be cooled as quickly as possible.

While waiting for emergency services to arrive you should:

- move the patient to a cool environment;
- soak the patient's clothing with water;
- apply cold packs continuously;
- place the patient in a tub of cool water; and
- circulate the air around the patient.

Do not give the patient any stimulants.

SUMMARY

The term heat stress includes a number of different conditions that occur when the body is stressed because of overheating.

The main causes of heat stress are:

- high temperature levels;
- high humidity levels;
- low levels of air movement;
- heat sources in the area;
- physical activity carried out; and
- type of clothing worn.

In order of severity, heat stress includes, heat rash, heat collapse, heat cramps, heat exhaustion and heat stroke.

Heat stroke is the most severe form of heat stress and occurs when the brain loses the ability to regulate the body's temperature. This can result in death. First aid experts should be called immediately to treat those suffering from heat stroke.

Heat stress can be prevented by a variety of different methods including:

- adapting work schedules;
- reducing heat exposure;
- increasing air flow;
- drinking water frequently;
- adapting to the heat;
- having frequent rest breaks;
- wearing protective clothing; and
- monitoring yourself and your environment.

When treating heat stroke, it is important to contact emergency services immediately. Remove the person from the source of heat, replenish the body's fluids and cool the body as quickly as possible.