Heat Disorders Prevention Guide

Think Safe. Play Safe. Stay Safe.
A Sports Safe Singapore

The Singapore Sports Council (SSC) recognises that safety must be a fundamental component of our sporting culture and a prerequisite for every healthy lifestyle. Therefore, the SSC has set a corporate goal of zero injuries, since all accidents can be prevented. Emphasising the need for personal accountability, the SSC also urges people to be responsible for the safety of others. Our Sports Safety Division was formed in 2006 under the direct purview of the CEO’s office. It was tasked to promote safety throughout Singapore’s sporting community and inculcate a safety-first mentality in the minds of every stakeholder. For more information, please visit www.sportssafety.ssc.gov.sg

Acknowledgement

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Sports Medicine Australia
http://sma.org.au

Singapore Sports School
http://www.sportsschool.edu.sg

General Staff Inspectorate
Singapore Armed Forces
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WHAT ARE HEAT DISORDERS?

Heat disorders can be classified as one or more of the following serious conditions:

- Heat Cramps
- Heat Exhaustion
- Heat Stroke

While exercising or taking part in sports activities under hot weather conditions, you have to take precautions to prevent heat disorders. Heat disorders may be fatal in many incidents if left unattended. Children are more likely to suffer from heat disorders than adults.
Heat Cramps are the mildest form of heat disorders. Painful intermittent muscle cramps are experienced in the larger muscle groups (calves, thighs and abdomen). They occur when there is an excessive loss of water and salt caused by profuse sweating when your body attempts to lose heat quickly.

Heat Exhaustion refers to the overheating of your body due to excessive loss of fluids or, in rare cases, salt depletion. Heat exhaustion is not fatal but, if left unattended, can result in heat stroke.

Heat Stroke is a more severe condition that occurs when your body’s thermoregulatory system stops working. Heat stroke can bring about an irreversible coma and even death.
CAUSES OF HEAT DISORDERS

Heat disorders occur when your body absorbs more heat than it can lose. When your body is unable to cool down through sweating, it causes your body’s core temperature to rise.

You are at greater risk of suffering from heat disorders when you:

- do not drink enough water before, during and after sports activities
- are unaccustomed to training or competition in high temperature
- are suffering from illness
- are physically unfit
- wear thick or excessive clothing or padding
- have previous occurrences of heat disorders
THE SYMPTOMS

It is important to identify the symptoms of heat disorders so that actions can be taken before matters escalate beyond control. Symptoms include:

- Headache
- Nausea
- Dizziness
- Fainting
- Discomfort or uneasiness
- Excessive sweating
- Lack of sweating
- Rising body temperature
- Rapid pulse
- Poor concentration
- Red and hot skin
- Muscle ache
- Muscle cramps
- Blurred vision
- Loss of co-ordination
- Disorientation or confusion
- Seizures or fits
- Fatigue
- Vomiting
- Decreased and dark - coloured urine
- Pale and clammy skin

Urine Colour Chart
An easy way to find out if you are well hydrated

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELL HYDRATED</td>
<td>DEHYDRATED</td>
<td>SEVERELY DEHYDRATED</td>
<td></td>
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</tbody>
</table>

Adapted from Lew, Slater, Nair, and Miller (2010)
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Disclaimer: colours listed may vary slightly from actual colour due to printing.

- Lightly coloured urine (1 - 3)
  - Continue the drinking habit

- Darker coloured urine (4 - 6)
  - Drink more fluid during and after training

- Very dark coloured urine (7 - 9)
  - Seek advice from Sports Nutritionist or Sports Physiologist
PREVENTION IS BETTER THAN CURE

Keep Drinking!
Adequate hydration is important before, during and after all sporting activities as it can help cool down your body’s core temperature. Drink as much as you can. Your body can lose up to 1 litre of fluid per hour in hot conditions. Thirst is not a good indication of your body’s fluid needs. Do not wait until you are thirsty before you drink.

You should drink about 500ml of water half an hour before and 250 - 500ml of water every half hour during sports activities. Weigh yourself before and after the sports activity. For every kilogram that you have lost, it means that your body has lost 1 litre of fluid. Replace this fluid loss by drinking 1.5 times the amount of fluid lost.

Wear appropriate attire!
Loose clothing can help to reduce the heat build-up surrounding your body. It also helps improve the ventilation around your body. Choose clothing made from breathable or heat-wicking material to help remove heat from your body.
Acclimatise!
Your body takes at least 7 - 10 days to get used to a hot environment. So before you start on a sport activity at a new location and environment, take it slow and easy to allow your body to get used to the new surroundings.

Watch what you eat or drink!
Heavy meals add extra heat to your body and divert blood flow away to aid digestion while alcoholic and caffeinated drinks cause your body to dehydrate. Avoid taking such food and drinks before doing any sports activities as they can increase the risk of heat disorders.
WHAT YOU CAN DO

Buddy up!
When exercising or playing sports, you should always do so with a buddy. Keep a lookout for each other. Should your buddy show any symptoms of heat disorders, take him/her to a shady area and try to cool him/her down. Call for help immediately. While waiting for help to arrive, use a wet towel to wrap around the neck, armpits and groin area or splash some water on him/her to help cool down his/her body temperature. Have your buddy drink some cool water if he/she is conscious and not nauseous.

You may end up saving his or her life!

Be aware of your environment!
As the temperature increases, take more frequent breaks to cool down your body. If the weather gets too hot, get out of the sun and under a shade to rest!
# THE 7-R HEAT DISORDERS FIRST AID MANAGEMENT

<table>
<thead>
<tr>
<th>Recognise Symptoms</th>
<th>Recognise symptoms of heat disorders and report them early.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest Casualty</td>
<td>Lie or sit casualty down in cool, shaded area with good air circulation.</td>
</tr>
<tr>
<td>Remove Clothing</td>
<td>Loosen any clothing to assist in cooling whenever possible.</td>
</tr>
<tr>
<td>Reduce Temperature</td>
<td>Douse the casualty in cool water. Use fans and other devices to reduce body temperature.</td>
</tr>
<tr>
<td>Re-Hydrate</td>
<td>If the casualty is conscious and alert, give him/her lots of fluids to drink. If unconscious, do not administer fluids by mouth as this may cause choking.</td>
</tr>
<tr>
<td>Resuscitate</td>
<td>Resuscitate unconscious casualty if you are trained. Protect the airway, support breathing and give intravenous fluids. Otherwise, rush the casualty to a hospital as soon as possible.</td>
</tr>
<tr>
<td>Rush to a Hospital</td>
<td>Do not delay!</td>
</tr>
</tbody>
</table>

Rush to a Hospital