When working or playing outside in direct sunlight, there is a significant risk of developing heat-related illnesses. Although older or physically weak people may be especially at risk, in practice physically active sports people, children, and teens are more likely to develop health-related illnesses. This is because young adults are more likely to engage in physical activities in extreme heat. Alternatively, children may forget to keep their bodies hydrated while having fun. Similarly, those in adventure sports may also develop these illnesses.

Such an illness occurs not only due to high environmental temperatures but also due to personal or lifestyle factors like physical exertion, alcohol consumption, lack of hydration, not taking many breaks, and poor knowledge of heat safety measures.

**Understanding Heat-related illnesses**

Heat causes significant issues in the body, including continuous water loss, changes in fluid and electrolyte balance, and difficulty regulating body temperature. Prevention and management depend on the specific condition and its severity.

Two common but relatively less severe heat-related illnesses are heat exhaustion and heat cramps, which cause cramps or spasms in the arms, legs, and abdomen. Heat exhaustion can also lead to symptoms like headache, nausea, irritability, thirst, and elevated body temperature. Heat rash, while not
life-threatening, can be distressing and appears as pimples or small blisters in areas like the neck, chest, body creases, and groin.

Timely management of heat exhaustion is crucial to prevent progression to more severe and life-threatening conditions like heat stroke or heat syncope. Heat syncope involves temporary unconsciousness, dizziness, and lightheadedness. Heat stroke is a medical emergency where the body loses its ability to regulate temperature, resulting in high body temperature, changes in mental status, coma, seizures, and the potential for multi-organ failure. Delayed treatment can be fatal.

It’s important to note that the high body temperature in heat stroke differs from a fever during infections. Fever is a controlled response to fight infections, while heat stroke results from the hypothalamus's failure to regulate body temperature. Body temperature will continue to rise without prompt first aid, posing a grave risk. Therefore, reducing body temperature as quickly as possible is crucial during heat stroke.

Although heat exhaustion is less severe, it can progress to heat stroke if not identified and treated early. Since heat stroke is a medical emergency, it’s vital to differentiate between the two conditions.

<table>
<thead>
<tr>
<th>Heat Exhaustion</th>
<th>Heat Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>A condition caused by prolonged exposure to high temperatures, usually accompanied by physical exertion or inadequate hydration.</td>
<td>A life-threatening medical emergency resulting from prolonged exposure to high temperatures, often without adequate hydration.</td>
</tr>
<tr>
<td>Normal or slightly elevated (up to 104F or 40C)</td>
<td>Extremely high (Above 104F or 40C)</td>
</tr>
<tr>
<td>Profuse sweating</td>
<td>Little to no sweating</td>
</tr>
<tr>
<td>Cool, moist skin</td>
<td>Hot, red, and dry skin</td>
</tr>
<tr>
<td>Fatigue</td>
<td>High body temperature</td>
</tr>
<tr>
<td>Weakness</td>
<td>Rapid pulse and breathing</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Confusion or disorientation</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>Seizures or convulsions</td>
</tr>
<tr>
<td>Headache</td>
<td>Loss of consciousness</td>
</tr>
<tr>
<td>Pale skin</td>
<td></td>
</tr>
</tbody>
</table>

**Preventing heat-related illnesses**

Preventing heat-related illnesses is crucial, as some, like heat stroke, can be life-threatening. Here are key prevention measures:

**Hydration and fluid balance:**

- Drink plenty of fluids, especially water.
- Avoid excessive diuretic beverages like alcohol and caffeine.
- Monitor urine color for adequate hydration (pale yellow is ideal).
- Consider electrolyte-rich beverages or sports drinks for prolonged outdoor activities.

**Proper clothing and sun protection:**

- Wear breathable, light-colored clothing that covers most body parts.
- Remember to wear headgear.
• Regularly apply high-SPF sunscreen on exposed skin.

**Timing and planning outdoor activities:**

• Schedule activities during cooler times, like early morning or late evening.
• Take regular breaks in shaded or air-conditioned areas to rest and cool down.
• Avoid overexertion, especially during intense physical activities.

**Environmental adjustments:**

• Create a cool and comfortable environment using fans, air conditioning, or misting systems.
• Keep indoor spaces well-ventilated and shielded from direct sunlight.
• Use window coverings or reflective materials to prevent heat from entering closed spaces.

**Monitor vulnerable individuals closely:**

• Closely watch those at risk, such as older people, young children, or individuals with chronic medical conditions.
• Ensure access to cool environments, hydration, and necessary medical assistance.
• Educate caregivers and family members on identifying signs of heat-related distress.

Additionally, remember that in the US, tens of children die each year from heat-related illnesses caused by being left inside cars. Never leave children, infants, older adults, or individuals waiting in a car during hot weather.

**Management of heat-related illnesses**

Management of heat-related illnesses requires immediate attention as they can rapidly progress to heat stroke. For mild cases, start with first aid measures:

1. Move the person away from direct sunlight to a cool area.
2. Encourage them to rest and remove excess clothing for heat dissipation.
3. Apply wet compresses or consider a cold shower.
4. Offer cold drinks, avoiding caffeine and alcohol. Sports drinks or Oral Rehydration Salt (ORS) may be preferred.
5. Use a fan or air conditioning if available.
6. Continuously monitor vital signs like pulse rate and breathing.

These measures are generally sufficient for heat cramps or exhaustion. However, rehydration through intravenous fluids may be necessary if vital signs worsen. In cases where emergency help is not readily available, managing heat stroke can involve techniques like using cold water and cooling blankets to lower body temperature.

Severe fluid and electrolyte imbalances require specialized care, so calling emergency services promptly is recommended. CPR may be necessary in some instances.
To sum up, though most cases of heat-related illnesses are mild, some, like heat stroke, can be life-threatening. In the case of heat-related illness, providing quick help is the key. This help must focus on managing dehydration and normalizing body temperature.

References


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