

Chapter 7. Environmental and Situational Emergencies Part 1. Heat and Cold-Related Illnesses

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Part 1: Heat and Cold-Related Illnesses

(Learn to recognise and treat common temperature-related emergencies such as heat stroke, hypothermia, and frostbite.)

1. Overview

The human body functions best at a **core temperature of ~37°C**. Exposure to extreme **heat or cold** can disturb this balance and lead to life-threatening emergencies. Timely first aid can prevent complications and even save lives.

2. Heat-Related Illnesses

Heat emergencies usually result from prolonged exposure to **hot weather, physical exertion**, or dehydration. These include:

A. Heat Exhaustion

A milder form of heat illness caused by loss of water and electrolytes through sweating.

* Signs & Symptoms:

- Heavy sweating
- Pale, cool skin
- Fatigue or dizziness
- Weak, rapid pulse
- · Nausea or vomiting
- Muscle cramps
- Headache

☐ First Aid:

- 1. Move the person to a cool, shaded area.
- 2. Have them lie down and elevate legs slightly.
- 3. Remove excess clothing.
- 4. Provide cool water or electrolyte drinks (if conscious).
- 5. Apply **cool, wet cloths** or fan the person.

If symptoms don't improve in 30 minutes, or worsen → Call emergency services (112).

B. Heat Stroke (Life-Threatening Emergency)

Heat stroke occurs when the body's cooling system fails, and internal temperature rises above 40°C. It can cause organ

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failure or death if not treated quickly.

* Signs & Symptoms:

- Hot, dry or moist skin
- Confusion, agitation, or unconsciousness
- No sweating despite heat
- Rapid, strong pulse
- Seizures
- · Nausea, vomiting
- □ Danger: This is a medical emergency!
- ☐ First Aid:
 - 1. Call 112 immediately.
 - 2. Move to a cool environment.
 - 3. Cool the person rapidly:
 - o Remove clothing
 - o Apply ice packs to armpits, neck, and groin
 - Use **cool water sponging** or cold shower
 - 4. **Do not give fluids** if unconscious or drowsy.
 - 5. Monitor breathing and be prepared for CPR.

3. Cold-Related Illnesses

Exposure to cold environments can lead to two major conditions: hypothermia and frostbite.

A. Hypothermia

Occurs when the body temperature drops below 35°C due to cold, wind, or water exposure.

* Signs & Symptoms:

- Shivering (early sign)
- Cold, pale skin
- Slurred speech
- Weak pulse
- Confusion or drowsiness
- Loss of coordination
- Unconsciousness (in severe cases)
- ☐ First Aid:
 - 1. Call 112.
 - 2. Move the person to a warm, dry place.
 - 3. Remove wet clothing and wrap in blankets or warm clothes.
 - 4. Warm the **core first** (chest, neck) not limbs.
 - 5. **Give warm fluids** only if conscious and alert (never alcohol).
 - 6. Avoid rapid rewarming (e.g., hot bath) can cause shock.

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B. Frostbite

Frostbite is **freezing of skin and underlying tissues**, usually affecting fingers, toes, nose, ears, and cheeks.

* Signs & Symptoms:

- Cold, pale or waxy skin
- Numbness
- Hard or frozen feeling to the touch
- · Later: blisters, swelling, blackened skin

☐ First Aid:

- 1. Get the person to a warm environment.
- 2. Remove wet clothes and cover affected areas with dry cloth.
- 3. Warm affected areas **gradually** (not by rubbing):
 - Use body heat (e.g., hands under armpits)
 - Soak in warm (not hot) water 37-40°C for 20-30 min
- 4. Do NOT:
 - o Rub or massage frostbitten areas
 - Use direct heat (e.g., fire or heating pads)
- 5. Seek medical attention—even if skin looks okay after warming.

4. Sunburn

Sunburn is skin damage caused by UV rays, usually from sun exposure.

❖ Signs:

- Red, warm, painful skin
- Swelling or blisters
- Headache, nausea (in severe cases)

☐ First Aid:

- 1. Move to shade or indoors.
- 2. Cool the skin with **cold compress** or cool water.
- 3. Apply moisturiser or aloe vera gel.
- 4. Drink **plenty of fluids** to stay hydrated.
- 5. Avoid **re-exposure to sun** until healed.

Severe sunburn with blisters, fever, or vomiting needs medical attention.

Self-Check Questions

- 1. What is the main difference between heat exhaustion and heat stroke?
- 2. Why should you avoid rubbing frostbitten skin?
- 3. How do you warm a hypothermic person safely?
- 4. What are two early signs of heat exhaustion?
- 5. When should you NOT give fluids to someone with heat stroke?
- 1. Heat exhaustion still allows sweating and normal mental state; heat stroke involves high temperature, confusion,

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and no sweating.

- 2. It causes further tissue damage and increases risk of skin loss.
- 3. Remove wet clothes, wrap in blankets, warm the core—not limbs—slowly.
- 4. Heavy sweating, dizziness, and nausea.
- 5. If the person is unconscious or semi-conscious.

☐ Key Take-Home Points

- Act fast in any heat or cold emergency to prevent damage or death.
- Use **gentle cooling or warming methods**—avoid extremes.
- Learn to distinguish **life-threatening signs** (confusion, unconsciousness).
- Know when to **call emergency services**—especially for heat stroke, severe hypothermia, or deep frostbite.

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