

# Cold stress

## Explain dangers

When you're cold, blood vessels in your skin, arms, and legs constrict, decreasing the blood flow to your arms and legs. This helps your critical organs stay warm, but you risk frostbite in your extremities.

Cold-related illnesses and injuries can cause permanent tissue damage or death.

### FROSTBITE

This means that your flesh freezes. Blood vessels are damaged and the reduced blood flow can lead to gangrene. Frostbitten skin looks waxy and feels numb. Once tissue becomes hard, it's a medical emergency.

### Treatment

- Get medical aid.
- Warm the area with body heat—do not rub.
- Don't thaw hands and feet unless medical aid is far away and there's no chance of refreezing. It's best to thaw body parts at a hospital.

### HYPOTHERMIA

This means that your core temperature has dropped.

### Moderate symptoms

- Shivering
- Blue lips and fingers
- Slow breathing and heart rate
- Disorientation and confusion
- Poor coordination.

### Severe symptoms

- Unconsciousness
- Heart slowdown to the point where pulse is irregular or hard to find
- No shivering
- No detectable breathing.

Although these symptoms resemble death, always assume the person is alive.

## Treatment

- Hypothermia can kill—get medical aid immediately.
- Carefully move the person to a shelter. (Sudden movement can upset heart rhythm.)
- Keep the person awake. Remove any wet clothing and wrap them in warm covers.
- Apply direct body heat—rewarm neck, chest, abdomen, and groin, but not extremities.
- If conscious, give warm, sweet drinks.

## Identify controls

- Wear several layers of clothing rather than one thick layer to capture air as an insulator.
- Wear synthetic fabrics next to the skin to “wick” away sweat.
- If conditions require, wear a waterproof or wind-resistant outer layer.
- Wear warm gloves, hats, and hoods. You may also need a balaclava.
- Tight-fitting footwear restricts blood flow. You should be able to wear either one thick or two thin pairs of socks.
- If your clothing gets wet at 2°C or less, change into dry clothes immediately and get checked for hypothermia.
- If you get hot while working, open your jacket but keep your hat and gloves on.
- Take warm, high-calorie drinks and food.

## Demonstrate

Ask your crew if they understand wind chill. Explain that it speeds up heat loss and give them the following examples:

- If the air temperature is -30°C with 16 km/h wind (strong enough to fully extend a flag), your skin can freeze in about a minute.
- If the air temperature is -30°C with 48 km/h wind, your skin can freeze in 30 seconds.

Show the crew where they can get some relief from the cold (e.g., a heated shelter) and some hot food and warm, sweet drinks.