

Information Sheet

Hypothermia/ Cold Water Immersion

Hypothermia occurs when your core body temperature drops dangerously low, below 35 degrees centigrade.

It can be caused by:-

- a. Exposure over time to cold, wet and windy condition leading to progressive heat loss, due to a failure to wear the correct clothing for the conditions.
- b. Immersion in cold water and the failure to rewarm.
Cold water immersion can also cause *Cold Shock*. At the moment of immersion, you can lose control of your breathing which causes involuntary gasps of air. This can result in the inability to breath. Sudden exposure to cold water also causes a rapid increase in heart rate and blood pressure that may result in cardiac arrest.

The affects of immersion in cold water, without protective clothing, can be rapid and severe:

Affects of cold water immersion

Your body loses heat to water 25 times faster than it does to air of the same temperature.

Water Temp (degrees C)	Loss of Dexterity (no protective clothing)	Time to exhaustion or unconsciousness	Expected survival time
0	<2 mins	Up to 15 minutes	<15 – 30 minutes
0 – 4	<3 mins	15 – 30 minutes	30 – 60 minutes
4 - 10	<5 mins	30 – 60 minutes	1 – 3 hours
10 - 16	10 – 15 minutes	1 – 2 hours	1 – 6 hours
16 - 21	Up to 40 minutes	2 – 7 hours	Up to 40 hours

This table is a guide to help illustrate the affects of cold water immersion. Differences in body mass, age etc will affect each individual's resilience to cold water immersion.

Prevention

“Your ability to survive cold water depends on how well you prepare”

- Plan your trip or session and think about the risks
- Get a weather forecast before you set out and estimate the water temperature
- Reduce the length of the session/trip or stay close to a safe location i.e. club house, your car etc that can be reached quickly if needs be.
- Keep yourself well fuelled with high carbohydrate foods and stay hydrated.
- Dress for immersion in cold water, you need to be able to carry on paddling even after you have been for a swim.
- As part of your risk assessment assess the need to wear specialised insulating/thermal clothing including a wetsuit or dry suit, capable of protecting you while in the water.
- Dress in layers using synthetic fabrics such as polyester fleece or base layers.
- Carry spare dry clothing including a waterproof/windproof jacket or canoe top. You are also advised to carry survival bag or thermal blanket, some food, a drink and a mobile phone.

- Wear a warm hat that will stay on your head in the water. 50% of heat loss is through your head.
- Know your own physical capabilities and limitations, don't overestimate them

Signs and symptoms

There are 3 stages of hypothermia, mild, moderate and severe. In practice it is important to recognise the first signs of hypothermia before they become severe.

The most typical symptoms of hypothermia (in order of onset) are:

- Shivering
- Fatigue and impaired judgment
- Clumsiness/Loss of dexterity
- Slurred speech
- Inward behaviour

The individual's respiratory rate will also increase during this time.

Keep an eye on your group or fellow paddlers; watch out for erratic paddling behaviour as well as physical symptoms. These may include: -

- Slow paddling, lagging behind the group, drifting without paddling
- Unresponsive to communication or instruction, withdrawal or not eating

These are all symptoms of fatigue/cold and may suggest a problem that the group needs to address.

If these symptoms are not spotted or if the individual fails to rewarm, then hypothermia may become severe. The symptoms in order of onset are: -

- Shivering stops
- Extreme confusion and irrational behaviour
- A decline in consciousness/slow shallow breathing
- Muscle rigidity
- Unconsciousness
- Death

Treatment of Hypothermia

In the early stages keeping someone warm may be as simple as giving them a hat, high energy food, a drink (avoid caffeinated drinks) or extra clothing.

However if hypothermia has set in and the individual is not re-warming you need to take action. This will depend on your location.

If you are close to an accessible building or vehicle, they should be moved to a warm place dressed in warm dry clothing and if possible give them food and a warm drink. If they are suffering the symptoms of severe hypothermia you should ring for medical attention.

If you are in a more remote place you will need to consider: -

- ✓ Move the person out of the cold – if this is not possible, protect them from wind, cover their head and insulate their body from the cold.
- ✓ Remove wet clothing – replace with a dry covering, preferably warm. Cover the person's head, neck and torso.
- ✓ Insulate the ground and lie the person down
- ✓ Apply additional insulation i.e. exposure bag, thermal blanket, sleeping bag
- ✓ Share body heat
- ✓ Do not leave the person alone – stay with them at all times.
- ✓ Call the emergency services for assistance

- ✓ Continually monitor breathing – breathing may be shallow, it is important not to commence CPR if there is any breathing or pulse detected.
 - ✓ If breathing stops commence CPR. In these circumstances a long period of resuscitation will be required until the casualty is re-warmed.
- These steps apply to all stages of hypothermia where the individual needs assistance.

Advice and information from the NHS on hypothermia can be found [HERE](https://www.nhs.uk/conditions/hypothermia/)
<https://www.nhs.uk/conditions/hypothermia/>