

# Hypothermia – a review

**Y**ou have been out on the hill in full winter conditions all day and are starting to descend from a high plateau. It's around 15:45, beginning to get dark and it's snowing. You find a solo walker taking shelter behind a boulder. The walker appears slightly confused but is speaking to you. He has waterproof over-trousers on and a soft-shell jacket which looks to be wet.

## What should you do?

The priority is to look after yourself and make sure you don't become a casualty. If possible, provide shelter using a bivvy bag or emergency shelter and insulate the walker from the ground - you can do this by sitting them on a rucksack - to prevent further heat loss.

Replace their wet clothes if possible. If

not, put a waterproof layer or foil blanket over their wet clothes to help retain any heat that is produced.

Encourage the walker to eat and drink if this is available.

Encourage them to walk down with you as this will prevent further heat loss and promote heat production.

It would be sensible to contact the local mountain rescue team (via 999 and police) to make them aware of the situation in case assistance is required during the descent.

If at any time you feel it is unsafe for you or the walker, then stop, shelter and call for help.

A walker in this condition would be a Stage 1 hypothermia sufferer.

## What is hypothermia?

In medical terms, hypothermia is defined as a core body temperature below 35°C,

whilst a core body temperature of below 28°C is defined as severe hypothermia. Normal body temperature is about 37°C.

In a hillwalking and mountaineering context hypothermia develops when the body is losing more heat than it can generate. This may be because of a lack of warm, dry clothes, lack of food or exhaustion. The best way to avoid heat loss is through additional clothing or use of a group shelter, although this may not be possible with a critically injured individual, or for someone who is exhausted from a protracted time in challenging weather conditions.

If the body continues to cool, then internal changes occur to try to prevent heat loss. These include the constriction of blood vessels in the peripheries of the body, aiming to prevent heat loss from warm blood being cooled further and returning this cold blood to the core

# hypothermia

**Hypothermia is widely known as a killer in the mountains and, though it can happen all year round, is best known as a winter hazard.**

organs, and shivering, which causes a significant increase in metabolic rate to generate heat. The heat generated in larger muscles is rapidly dissipated to the external environment, making it an inefficient heat generation process.

As heat loss occurs through convection, evaporation, radiation and conduction, it is important to ensure good ground insulation, removal of wet clothes and the addition of insulating clothing – all of which will be beneficial to the casualty. Should you be unlucky enough to find someone who is not responsive and who does not have a pulse, then resuscitation (CPR) should be seriously considered.

If a casualty has a clear airway (mouth is not full of snow), does not have catastrophic injuries and is not completely frozen to the point you cannot compress their chest, then resuscitation should be started and continued until someone more qualified tells you to stop. The gold standard treatment for a hypothermic cardiac arrest is ongoing CPR (by a mechanical device if available) and transport to a specialist hospital where the patient can be rewarmed using a technique called ECMO (ExtraCorporeal Membrane Oxygenation) which is only available at specific regional centres.

While resuscitation in these circumstances is extremely challenging,

there are multiple examples of survival in such patients; the longest reported CPR being 288 minutes in a female with a core temperature of 20.8°C, after which the patient survived without any ongoing cognitive issues. So, if instead of a responsive victim as at the start of this article, you find a person at the side of the path who is cold to touch, doesn't appear to be breathing and who doesn't appear to have a pulse, but has no obvious injuries – stage 4 hypothermia – you should not assume they cannot be helped.

Immediately summon help by dialling 999 and asking for the Police and then Mountain Rescue. Assess the casualty. If they do not have massive injuries incompatible with life and are not so frozen that you are unable to compress the chest wall for CPR, then you should start CPR and continue it (if possible) until someone more experienced/qualified arrives and takes over.

And remember, hypothermia can affect anyone and prevention is always better than cure. If you are concerned that someone is hypothermic, prevent further heat loss, encourage heat production, and seek assistance early if concerned.

*A copy of Ken Crossley's complete article can be obtained by emailing [info@scottishmountainrescue.org](mailto:info@scottishmountainrescue.org).*

## How to avoid hypothermia

**Prevention is, by far, better than cure.**

If you find yourself or your friends are wet and cold then you should find somewhere to shelter out of the prevailing weather, change into dry clothes if possible, warm up, and eat and drink to replace energy being used for internal heat production. These behavioural adaptations to being cold are by far the best way to prevent further cooling and may be the difference between an 'epic' on the hill and a tragic story.

Remember – If you or a friend are suffering from mild hypothermia, then it is likely that others in your party are suffering too, so ensure everyone is looked after.

If a person can make their own way off the hill, even slowly, then this is the best treatment as moving will increase muscle use, which in turn creates heat and aids with rearming.

If you find someone who is not able to walk/is not alert, then you should summon immediate assistance from the Mountain Rescue – Call 999 and ask for the Police. They will take all relevant information and pass it to the local team leader who will co-ordinate your rescue.