

HOW TO PREVENT HYPOTHERMIA

PREVENTION IS EASIER THAN TREATMENT

PLAN YOUR TRIP

- ▲ **Be aware of the weather** – check the forecast and expect weather changes.
- ▲ **Know your limits** – challenge yourself within your physical limits and experience.
- ▲ **Take sufficient supplies** – ensure you have enough food, equipment and emergency equipment.
- ▲ **Keep your load to a minimum** – avoid carrying extra equipment you do not need.
- ▲ **Allow time for breaks** – eat, drink water, and put on extra clothing during rest breaks.
- ▲ **Don't get too hot while moving** – sweat will dampen clothes which will increase heat loss.

Any combination of WET, WIND AND COLD can be lethal. Consider turning back or seeking shelter if you encounter these conditions. Check all party members regularly for any signs of hypothermia.

CLOTHING

However fine the weather, take waterproof and windproof clothing, including a hooded rain jacket and over trousers. Wear wool, polypropylene or polar-fleece clothing.

Clothing only retains what heat your body produces. The best way to maximise this is to layer your clothes appropriately. This traps warm air between each layer and allows you to adjust your clothing to the conditions.

A wool or fleece hat and gloves are important because of high heat loss from the head, neck and extremities. Avoid cotton clothing e.g. jeans and cotton t-shirts as they do not provide effective warmth.

HYDRATION

Drink liquid frequently – consistent water intake will help to prevent exhaustion. A thermos of hot liquid or a brew on a portable stove is ideal.

FOOD

Eat breakfast – a good breakfast is essential to provide energy for the day.

High energy value foods – these should contain proteins, fats and carbohydrates in the proportion 1 : 1 : 4. Take a combination of nourishing foods such as cheese, bread, peanut butter, scroggin and muesli bars, as well as high energy snacks such as chocolate and barley sugars.

New Zealand Mountain Safety Council RESOURCES

PAMPHLETS

- ▲ Avalanche Rescue
- ▲ Avalanche Safety
- ▲ Firearms Safety
- ▲ Going Bush?
- ▲ Going Hunting?
- ▲ Hypothermia
- ▲ Let It Breathe – Camping appliance safety
- ▲ Outdoor Communications
- ▲ Selecting a firearm
- ▲ Whakatūpato

EQUIPMENT

- ▲ Avalanche cards
- ▲ Chamber Safety Device
- ▲ MSC packliner
- ▲ MSC pocket survival bag
- ▲ MSC safety whistle
- ▲ MSC survival bag

DOWNLOADS

- ▲ Mountain Radio Contacts
- ▲ Plan to Survive
- ▲ River Safety
- ▲ Snowsports

MANUALS

- ▲ Abseiling
- ▲ Alpine Rescue Techniques
- ▲ Alpine Skills
- ▲ Avalanche Accidents
- ▲ Bushcraft
- ▲ NZ Firearm Handbook
- ▲ Outdoor First Aid
- ▲ Outdoor Safety

DVDs

- ▲ On Target
- ▲ Outdoor Safety Code
- ▲ River Safety

Order from: www.mountainsafety.org.nz/resources

USEFUL CONTACTS

- ▲ AdventureSmart www.adventuresmart.org.nz
- ▲ Avalanche Advisory www.avalanche.net.nz
- ▲ Department of Conservation www.doc.govt.nz
- ▲ Federated Mountain Clubs NZ www.fmc.org.nz
- ▲ MetService www.metservice.co.nz
- ▲ Metvuw www.metvuw.com
- ▲ National Incident Database www.incidentreport.org.nz
- ▲ NZ Land Search & Rescue www.landsar.org.nz

New Zealand Mountain Safety Council
PO Box 6027 Wellington, 6141
Tel 04 385 7162, Fax 04 385 7366
Email: info@mountainsafety.org.nz

www.mountainsafety.org.nz
www.adventuresmart.org.nz
www.avalanche.net.nz
www.incidentreport.org.nz



HYPOTHERMIA

Visit: www.mountainsafety.org.nz








SHAUN BARNETT, BLACK RIBBIN PHOTOGRAPHY

RECOGNISING THE SIGNS, HOW TO RESPOND AND PREVENTION



DISCOVER MORE, SAFELY. ▲

THE VARIOUS STAGES OF HYPOTHERMIA

37°C		NORMAL BODY CORE TEMPERATURE	
36°C		FEEL COLD ▲ Still alert and able to help yourself ▲ Numbness in legs and arms	
35°C		MILD HYPOTHERMIA ▲ Shivering ▲ The 'Umbles' may present ▲ May appear drunk ▲ Denies any problems	MILD
33°C		MODERATE HYPOTHERMIA ▲ Uncontrollable shivering ▲ Increased confusion ▲ The 'Umbles' worsen ▲ Increased heart and respiratory rate	MODERATE
		SEVERE HYPOTHERMIA ▲ Muscle stiffness ▲ Shivering stops ▲ Collapse ▲ Decreased level of consciousness Can deteriorate to: ▲ Unconscious ▲ No response to pain ▲ Breathing may be difficult to detect ▲ Slow pulse ▲ Skin cold – may be blue/grey or pink in colour	SEVERE
32°C			
28°C		CARDIAC ARREST ▲ Unconscious with no obvious breathing or pulse ▲ May appear dead	

WHAT IS HYPOTHERMIA?

Hypothermia is when the core body temperature drops to a level where normal brain and muscle function is impaired – usually at or below 35°C. When the body cannot cope it goes into survival mode, shutting down non-essential functions. Hypothermia occurs when the body cannot make up for the amount of heat lost.

HYPOTHERMIA CAN LEAD TO:

- ▲ Loss of coordination
- ▲ Breathing difficulties
- ▲ Mental deterioration
- ▲ Circulatory failure
- ▲ Unconsciousness
- ▲ Death

The human body works best at approximately 37°C. The 'outer shell' can get much colder but the vital organs in the 'core' must stay at this constant temperature.

WHAT IS COLD SHOCK?

Cold shock is when a person is rapidly chilled, e.g. falling into cold water. Hypothermia is not the immediate concern here as the core takes up to 30 minutes to become hypothermic.

Several reactions occur when immersed suddenly in cold water:

- ▲ **Uncontrolled gasping** – increases risk of water inhalation and drowning.
- ▲ **Hyperventilation** – can cause fainting due to altered levels of carbon dioxide in the blood.
- ▲ **Loss of coordination** – makes swimming or exiting water difficult.
- ▲ **Decreased 'outer shell' blood flow** – blood vessels close to the body's surface constrict, forcing blood from the extremities to the core, which increases heart rate and blood pressure. This can lead to strain on the heart which may result in cardiac arrhythmias or heart failure.

If the patient's temperature is less than 35°C then they should be treated as hypothermic. If their temperature is above 35°C, keep them moving as 70% of heat production is generated by muscle activity.

Only a low reading thermometer will tell you whether an unconscious patient is suffering from hypothermia or cold shock.

WHAT CAUSES HYPOTHERMIA?

ENVIRONMENTAL FACTORS that may contribute to hypothermia:

- ▲ **WET CLOTHING** – which has decreased insulating properties.
- ▲ **WIND** – will draw the heat from the body.
- ▲ **COLD** – when combined with wind increases chances of hypothermia. Remember temperature will decrease with increased altitude.

OTHER FACTORS that may hinder the body's ability to maintain core temperature:

- ▲ **POOR FOOD INTAKE** – not enough, not often enough, wrong type.
- ▲ **FATIGUE** – which may be due to a lack of fitness, activity inexperience, or heavy loads.
- ▲ **RECENT ILLNESS** – especially influenza and 'gastro' illness.
- ▲ **INJURY and/or ANXIETY** – can decrease the body's ability to cope with cold conditions.

Assume any immobile patient in the outdoors may develop, or may already be suffering from hypothermia.

SIGNS & SYMPTOMS OF HYPOTHERMIA – THE 'UMBLES'

- ▲ **Grumbles** – They may complain or become argumentative.
- ▲ **Fumbles** – Hand/eye coordination may deteriorate.
- ▲ **Mumbles** – They may mutter and speak unclearly.
- ▲ **Stumbles** – They may trip without reason.
- ▲ **Tumbles** – Falling may occur without obvious cause.

Hypothermia can lead to a medical emergency. Immediate action is needed to prevent further heat loss and assist re-warming. DO NOT IGNORE THE SIGNS.

HOW TO RESPOND TO HYPOTHERMIA

- ▲ **STOP!** – Prevent further cooling.
- ▲ **FIND SHELTER** – Look for or construct a shelter [e.g. tent, snow cave, bivvy]. Get out of the wind and rain.
- ▲ **REMOVE AND REPLACE WET / DAMP CLOTHES** – with warm and dry items.
- ▲ **WARM SWEET DRINKS** – these will help to warm the patient from the inside. Do not give any liquid to an unconscious person.
- ▲ **DO NOT GIVE ALCOHOL**
- ▲ **ASSIST REWARMING:**
 - **Emergency thermal blanket** – can be used as an interim measure to prevent further heat loss. Further warming will be required using other heat sources.
 - **Sleeping bag** – Get the patient into a sleeping bag. You can increase warmth by placing bottles filled with warm water around the torso (not against skin), or have another fully-clothed person inside the sleeping bag to share body heat.
- ▲ **RECOVERY POSITION** – for any patient that is unconscious.
- ▲ **HANDLE WITH CARE** – handle any unconscious patient with extreme care and only move them when absolutely necessary.
- ▲ **MONITOR** – for changes in level of consciousness, temperature, pulse and breathing.
- ▲ **CPR** – if the patient is unconscious and there is an absence of normal breathing then begin Cardiopulmonary Resuscitation (CPR). Once started, CPR should be continued until breathing returns.
- ▲ **CALL FOR HELP** – activate your Personal Locator Beacon or contact emergency services via Mountain Radio. If you have mobile phone coverage dial 111.

NOTE: With warmth and shelter, victims often appear to recover quickly. However, don't press on as they may relapse. Full recovery can take several days.