

ARCTIC
EMERGENCY
AID IN THE
FIELD

Medicine – Treatment Guide- Cold

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Medicine

For many medicines, it is noted that, if possible, medical advice should be obtained prior to their use. If this is not possible, this guide has been written to assist the untrained person with the medicines. Following this, treatment should be discussed with radio-medical.


Pain relievers

Buprenorphine (Norvipren®, Temgesic®)

Buprenorphine Buprenorphine is a synthetic opioid used for severe pain when less potent agents are insufficient. The effect sets in after 15-30 min. and lasts 4-8 hours

Dosage: Adults. Usually, 200-400 micrograms are placed under the tongue 3-4 times a day or as needed.

Note: Sublingual tablets are placed under the tongue and must not be swallowed or chewed.

 Use caution in connection with driving or operating machinery. If the agent affects one's ability to drive a motor vehicle, driving may be punishable in the same way as drunken driving and should be avoided.

A good alternative to morphine as injectable form.

Do not administer simultaneously with morphine, as the two substances counteract each other.

Prescription only. If possible, consult a physician before use.

Ibuprofen (Ibumetin®, Ipren®, Ibumax®)

Ibuprofen is a non-steroidal anti-inflammatory agent used to treat mild pain, such as headache, toothache, muscle and joint pain, or menstrual pain. The agent also suppresses tissue reactions (inflammation) that can be seen in certain rheumatic diseases or which may occur after a stroke or sprain. Symptoms of inflammation can be swelling, redness, tenderness and pain.

Dosage: Mild pain: Adults. Usually 200-400 mg as needed, at most 3 times a day.

Do not ingest on an empty stomach. May cause abdominal pain and bleeding.

Paracetamol (Panodil®, Pinex®, Pamol®)

Paracetamol is a mildly acting agent against pain and fever.

Dosage: Adults. Usually 500-1000 mg 3-4 times a day. Can be taken with *Ibuprofen*.

Lidocaine (Xylocain®)

Lidocaine is a locally acting amide-type analgesic used for local anesthesia of the skin, e.g. in connection with insect stings/bites.

Dosage: Use as needed.

Antibiotics

Ciprofloxacin (Ciprofloxacin, Cifin)

Ciprofloxacin is an antibiotic used to treat severe infections with bacteria that can be affected by *ciprofloxacin*, e.g. complicated urinary tract infections, blood poisoning, typhoid, paratyphoid, Legionella, other rare infections, pneumonia in people with cystic fibrosis. Also used as prevention against meningitis caused by meningococcal bacteria.

Dosage: The dose depends on the nature and severity of the disease.

Infections: Adults. Usually 500 mg twice a day.

Prescription only. If possible, consult a physician before use.

Doxycycline (Doxycyclin, Vibradox®)

Doxycycline is a broad spectrum antibiotic of the tetracycline group used to treat infections with bacteria that can be affected by tetracycline, e.g. chlamydia. Can be used if you are allergic to penicillin. **Must be carried if working with marine mammals or marine samples for the treatment of "fat finger"**.

Dosage: The dose depends on the nature and severity of the disease. Adults and children over the age of 12. Usually 200 mg the first day followed by 100 mg once a day.

Prescription only. If possible, consult a physician before use.

Phenoxymethylpenicillin (Primcillin®)

Phenoxymethylpenicillin is an antibiotic used to treat infections with bacteria that can be affected by penicillin, such as throat inflammation, pneumonia or otitis.

Dosage: Dosage: The dose depends on the nature and severity of the disease.
Adults: usually 330-660 mg (500,000-1 mill. IU) 2-4 times a day.

Phenoxymethylpenicillin Phenoxymethylpenicillin should not be used in patients with hypersensitivity to penicillin or penicillin-like.

Prescription only. If possible, consult a physician before use.

Dermatologicals

Hydrocortisone (Locoid®, Hydrokortison, Hyderm®)

Hydrocortisone is a moderate glucocorticoid-containing skin remedy used for various forms of eczema as well as in certain other skin conditions, e.g. psoriasis. The agent can also be used in sunburn and, in some cases, as an antipruritic agent. As the agent is mild, it can be used on the face and in areas where the skin is moist as well as for children.

Dosage: Apply to the skin in a thin layer 1-2 times a day. Note: To avoid side effects, treatment should not be longer than necessary.

Antihistamine, sleeping agents, transport sickness

Cetirizine


Cetirizine is an antihistamine used in hypersensitivity reactions, particularly hives and hay fever or mosquito bites.

Dosage: Usually 10 mg once a day.

Cyclizine (Marzine®)

Cyclizine is an antihistamine used for transport sickness, i.e. seasickness, motion sickness and airsickness, as well as certain types of dizziness (Meniere's disease).

Dosage: Usually 50 mg. The tablets should be taken 1-2 hours prior to departure. Maximum 3 doses a day.

 Use caution in connection with driving or operating machinery. If the agent affects one's ability to drive a motor vehicle, driving may be punishable in the same way as drunken driving and should be avoided.

Welding Eyes / snow blindness

Fusidin (Fucithalamic®)

Fusidin Fusidin is a narrow-spectrum antibiotic for local use. Used to treat eye inflammation, preventively after eye lesions, after removal of foreign bodies and in connection with snow blindness.

Dosage: Usually 1 drop twice a day. Treatment should continue for 2 days after the symptoms have ceased.

Prescription only. If possible, consult a physician before use.

Diclofenac (Voltaren® Ophtha)

Diclofenac eye drops are a non-steroidal anti-inflammatory agent. Used to relieve eye pain, e.g. in connection with snow blindness/welding eyes.

Dosage: 1 drop in the eye 3-5 times a day.

Prescription only. If possible, consult a physician before use.

Burns/frostbite

Silver sulfadiazine (Flamazine)

Silver sulfadiazine is an antibacterial skin remedy used to prevent skin infection in connection with second and third degree burns / frostbite.

Dosage: Following treatment with cold water until the pain is gone, apply a 3-5 mm thick layer once a day. The application should be sterile and sterile dressing applied. See also treatment of burns.

Prescription only. If possible, consult a physician before use.

Digestion and dizziness

Metoclopramide (Emperal®)

Metoclopramide (hydrochloride) is a peristaltic promoting and anti-emetic agent used for nausea and vomiting.

Dosage: Usually 10 mg at most 3 times a day prior to a meal. Should only be used briefly (up to 5 days). Minimum interval of 6 hours must be observed.

Prescription only. If possible, consult a physician before use.

Loperamide (Imodium®)

Loperamide is a peristaltic inhibitor that is used briefly in acute diarrhea in otherwise healthy people, e.g. in connection with travel. The cause of the diarrhea (often an infection) should be treated simultaneously.

Dosage: The starting dose usually 4 mg. Pause 1 hour. Then 2 mg after each toilet visit with diarrhea. A maximum of 16 mg per day may be taken.

Treatment should not be continued beyond 48 hours.

Treatment guides

The purpose of this brief treatment overview is to provide personnel a quickly read tool in acute situations, where it is not possible to obtain medical advice over the radio.

Strain injuries

- Fiber damage
- Sprains
- Joint accumulation
- Fatigue fractures

All of these injuries are due to sudden or prolonged overload of the musculoskeletal system:

TREATMENT OF ACUTE INJURIES:

I	Ice (Cooling)	Immediately – hours
C	Compression	Immediately – hours
E	Elevation	Immediately – hours No strain till diagnosed

FURTHER TREATMENT:

REST Immediately – two days

TABLET *Ibuprofen* 600 mg 3 times a day for 5 days.

Fatigue fractures are commonly seen. They occur after prolonged stress on a weight-bearing bone. Almost always appear in the fibia. Be aware of the condition in connection with subtalar pain lasting more than 2 weeks.

Burns

1st DEGREE: Redness of the skin

2nd DEGREE: Blisters

3rd DEGREE: Carbonization of the tissue

1 % RULE:

The burn victim's hand covers approximately 1 % of the body surface. 1st and 2nd degree burns of less than 10 % can be treated locally. 3rd degree burns and 1st and 2nd degree burns involving more than 10 % of the body surface **MUST** be evacuated after primary treatment, as there is a risk of shock.

TREATMENT:

1. Cooling with water or snow till the pain is gone - can take hours.
2. Apply a good layer of silver sulfadiazine (Flamazine).
3. Sterile dressing.
4. The dressing is left untouched for 12 days. Only change if it gets wet, smelly or in case of fever.
5. Drink plenty of fluids. Administer painkillers as needed.

IF SIGNS OF INFECTION: SEEK MEDICAL ADVICE OVER THE RADIO.

Frostbite

1ST DEGREE FROSTBITE:

White spot on the skin. Keep an eye on your colleagues' faces!

The skin feels normal in consistency.

TREATMENT:

Thaw by placing a mitten or the like on the affected area. Once you have had a 1st degree frostbite, you get a new one more easily in the same area.

2nd DEGREE FROSTBITE:

While the tissue is frozen, it looks like 1st degree frostbite. The skin is white, but hard as if frozen!

When 2nd degree frostbite has thawed, it looks like a 2nd degree burn.

TREATMENT:

Thaw in 42° C hot water – it hurts! Painkillers – *Buprenorphine* may be necessary. Further treatment: as a 2nd degree burn.

3rd DEGREE FROSTBITE:

While the tissue is frozen, it cannot be distinguished from 2nd degree frostbite. After thawing, the tissue dies, it turns black and withers away. Evacuation is always necessary in connection with 3rd degree frostbite.

Foreign body in the eye

Loose foreign matter in the eyes can usually be removed with a damp cotton swab without major precautionary measures. Fixed foreign bodies - grinding shells from angle grinders, scales and the like usually require the eye to be locally anesthetized.

Drip a few drops of oxybuprocain eye drops onto the inside of the lower eyelid (if any). Wait a few minutes until the eye is anesthetized. Make sure the patient's head is still and try to remove the foreign body with a spatula-pointed match. Also, remember to look for foreign objects under the eyelid.

After removing the foreign body, drip with *Fusidin* eye drops in the lower eye bag twice daily for 2 days and protect the eye from light with sunglasses or an eye patch.

If the foreign body cannot be removed: drip with *Fusidin* eye drops in the lower eye bag twice daily. Cover the eye and seek medical advice.

Bone fractures and joint luxation

By visible deformity of the fractured extremity, normal position is attempted to be re-established. Compare to the healthy side. When a fracture is set, use the SUPPORT and PULL technique. Support the fracture with one hand while pulling the arm or leg evenly in the longitudinal direction with the other. When the fracture has been straightened out, use a splint to stabilize the fracture. If you cannot access a splint: Improvise. Use available materials. Make sure to pad the broken limb well, pay attention to blood flow and provide painkillers. *Buprenorphine* is usually required. Persons with fractured arms or legs should be evacuated as soon as possible.

In case of open fractures with wounds near the fracture, antibiotic treatment is preventively started

Primcillin® 0.8g 2 tablets twice daily for 7 days (if available).

In general, joint luxation is treated in the same manner as bone fractures.

The joint's normal position is attempted to be restored. Then immobilize with a splint.

Abdominal pain

Assessing acute abdominal pain is difficult, even for a trained practitioner. If possible, always seek medical advice.

Ask about:

1. Stools: Constipation?

Diarrhea?

Passing gas?

Rumbling in the stomach?

Nausea and vomiting?

2. Fever: Is fever present?

3. Pain: Where did it start?

Is it sporadic or constant?

Is it radiating pain?

4. Nausea: Nausea? Vomiting?

Is the patient able to keep anything down?

When examining the stomach, start by asking the patient to point with one finger at the place that hurts. Is it towards the top of the stomach? Towards the bottom? Towards one of the sides? Examine the stomach with a flat – not cold hand. Begin the furthest away from the painful area. Is there tenderness when pressing? Does it hurt when you let go? The two real disasters in the stomach are perforated ulcers and acute appendicitis.

Stomach ulcers cause sudden severe pain in the stomach. The pain gradually spreads throughout the stomach and finally the abdominal wall is hard as a rock. The condition is life threatening, and the patient must be evacuated as soon as possible. Administer *Buprenorphine* (page 4) while you wait. The patient must not eat or drink.

Acute appendicitis usually starts more insidiously with pain around the navel. The pain moves slowly to the right side in the area between the navel and the front hip joint. There is usually nausea and vomiting. The body temperature goes up. No passing of gas or stools. This is how everyone thinks appendicitis

develops. This is far from reality! Appendicitis should be suspected in any case of pain in the lower stomach, diarrhea may occur, nausea may be lacking, the body temperature may be normal, etc. Caution! If in doubt: **SEEK MEDICAL ADVICE OVER THE RADIO.**

TREATING APPENDICITIS:

Treatment is surgical.

If the patient can be operated on within approximately 12 hours:

1. Keep him/her fasting
2. Administer painkillers (*Buprenorphine*) as needed.
3. Initiate evacuation

If surgical treatment is not possible:

1. Provide a liquid diet
2. Apply warm covers to the stomach
3. Administer painkillers (*Buprenorphine*, page 4) as needed.
4. 4. Metronidazole 500 mg is given 3 times daily (if available) and Ciprofloxacin 500 mg twice daily.

As soon as possible, further treatment is arranged with Radio medical

Meningitis

Meningitis is an infection of the meninges. It may be caused by viruses or bacteria.

Symptoms of meningitis:

- High fever
- Severe headache
- Stiffness of the neck and back
- Apathy, impaired consciousness, possibly unconsciousness

Examination for stiffness in neck and back:

1. Ask the patient to bend the neck so that the chin touches the chest. If he/she is unable to do this by himself/herself, the examiner lifts the person's head and attempts to get the chin to touch the chest. If there is resistance to these movements, the patient has stiffness in the neck.
2. Ask the patient to bend the chin towards the knees. If he/she cannot do this on his/her own: hold the neck and try to bend the upper body towards the knees. If this is not possible, the patient has stiffness in the back.

TREATMENT:

If meningitis is suspected, begin treatment immediately by:

1. *Ciprofloxacin* 500 mg 4 tablets immediately, then 500 mg 4 times daily.
2. Initiate evacuation immediately, if at all possible.

If there are reasonable grounds to suspect meningitis, do not waste time seeking medical advice. Begin treatment immediately and ask for forgiveness later.

Shock

Is defined as a condition where the blood circulation fails such that the oxygen supply to the vital organs is insufficient.

Could be caused by:

1. Blood loss following an accident.
2. Loss of fluids from burns or severe diarrhea.
3. Allergic reactions (Anaphylactic shock), e.g. from vaccinations or allergy to antibiotics.

Symptoms of shock:

- Impaired consciousness
- Pallor, cold sweat
- Quick pulse
- Low blood pressure

TREATMENT:

Life-saving first aid:

- A) Clear the airways
- B) Sufficient breathing function. Provide oxygen, if available
- C) Stabilize circulation, stop bleeding and administer fluids

Remember: Never attempt to make an unconscious person or person with impaired consciousness drink fluids. They risk suffocating.

For alert persons, e.g. following burns or bleeding, fluid may be administered by letting him/her drink lots of fluids.

Allergic shock is treated by immediately injecting *Adrenalin* 0.6 ml intramuscularly or intravenously (if it is available). This may be repeated after 15 minutes.

Seek medical advice for all shock.

Allergic shock must be treated immediately, there is no time to seek medical advice. Treat with *adrenaline* and seek advice afterwards.

Unconscious persons displaying symptoms of shock must be evacuated immediately, if at all possible.

Welding eyes/snow blindness

Welding eyes/snow blindness are a 1st degree burn of the cornea. They are caused by ultraviolet light.

Symptoms:

- Pain in the eyes
- Increased lacrimation
- Photophobia
- Red mucosa around the cornea

TREATMENT:

Fusidin eye drops

Diclofenac eye drops

Darkness – eye patch, dark room and sunglasses.

If nothing else is available, 1 drop of condensed milk or cream (dairy) can work wonders with a couple of painkillers. Without treatment, it takes 24 hours for the pain to disappear.

Dental emergencies

Tooth abscess: Pain, swelling and redness around the tooth.

Treatment:

Ciprofloxacin 500 mg – twice daily for 7 days.

Inflamed wisdom tooth: Swelling towards the back of the jaw, difficulty chewing and yawning, pain and fever

Treatment:

Ciprofloxacin 500 mg – twice daily for 7 days.

Cold

Man is, by nature, built as a naked sweaty monkey designed to live in a tropical rainforest.

When, despite this, we are able to cope with very different climatic conditions, it is because we partly adapt the body to the current climate, this process is called **adaptation**, and partly that we have learned a lot of tricks to ensure that we can survive even extreme climatic conditions. Examples of this are clothing, diet and housing.

In order to understand what happens when a human is exposed to extreme cold, it is necessary to know the mechanisms that cause man to maintain his temperature when subjected to cooling. The mechanism is called **temperature regulation**.

Knowledge about temperature regulation is also important in order to understand, which treatment is necessary to save a cold-injured person.

The human body temperature is maintained at a constant around 37° C. If the temperature rises to 41° C during fever, we no longer react normally. Already at 42° C, unconsciousness and death occur.

Likewise, a decreasing body temperature will quickly cause problems. At a temperature of 35° C, you will become lethargic and apathetic, at 33° C unconsciousness sets in, and at around 25° C cardiac arrest occurs.

Temperature regulation

By digesting the nutrients we eat, we produce heat and energy.

The energy is used to carry out physical work. The heat helps us maintain our body temperature.

If we produce too much heat, it is released to the surroundings. If we do not produce enough heat, the body is threatened by cooling.

If the body is threatened by cooling, a center in the brain that regulates heat release will take the necessary measures to maintain a constant body temperature. Just as we know it from a thermostat.

This can be done in two ways:

1. By **reducing** the release of heat from the core of the body to the body surface
2. By **increasing** heat production

The transport of heat from the body core to the body surface can be reduced by decreasing the amount of blood transported from the body core to the body surface. This increases the skin's insulation ability, and the loss of heat to the surroundings is decreased.

Particularly, the blood flow to hands and feet is reduced, as they are efficient heat exchangers due to their large surface area and the special structure of blood vessels.

If this reduction of heat release is not sufficient to maintain a normal body temperature, heat production in the body must be increased. This is done by the body shivering from cold without us willing it. By shivering, heat is produced in the muscles, thereby heating the body.

A person at rest produces the same amount of heat as a 100 watts light bulb. During heavy chills, heat production can be increased to 500 watts.

Isolation/heat conduction

Air is a good insulator, and usually the body is surrounded by air in our clothes.

All practical isolation consists of stagnant air. The smaller the air pockets, the better the insulation.

The fight against water from the inside / outside

Water is a good heat conductor that conducts heat 25 times better than air.

Water in clothing creates thermal bridges.

You sweat to release heat. Water from within from sweat is particularly dangerous.

Only the water that evaporates while you are working cools you down.

THEREFORE:

1. AVOID SWEATING WHEN YOU ARE WORKING IN COLD SURROUNDINGS.
2. CLOTHING MUST BE ABLE TO VENTILATE.

It is better to wear too little clothing when you are working, provided you have extra clothing to wear when you stop working.

Cold/wind

The effect of the cold is intensified by wind.

Wind-chill factor indicates the amount of time till frostbite occurs on unprotected skin exposed to cold and wind (see table).

Staying in water

During World War II, 80,000 Allied sailors died in the Merchant Marine. They are listed as having drowned. With the knowledge we have today, we know that 80% of these people died from cold.

When staying in water, the body will be cooled due to the good thermal conductivity of the water.

Even on a hot summer day, a person who falls into the water will be in danger of dying from cold. In the summer, with water temperatures of 17-18 ° C, the survival time can be up to 24 hours. In the winter, it can be as little as an hour, depending on clothing and fat layer.

It is important to note that after even a brief stay in water, a person will be helpless due to low temperature in the arms and legs. When the temperature

in the arms and legs is about 7 ° C, nerves and muscles will be paralyzed and the victim will not be able to assist in a rescue operation - e.g. grasp and attach a rope.

General Cooling - Hypothermia

When the body temperature is reduced to 35 ° C, the condition **hypothermia** occurs.

The drop in body temperature causes:

- Increasing lethargy
- Decreased energy
- Decreased awareness
- Unconsciousness and low heart rate

Important information can be obtained by observing the symptoms of the injured person.

At 37-35° C

- At 37-35° C there will be chills.
- The person is conscious.
- Arms and legs are paralyzed by cold.
- The skin is pale

The person is **affected by cold**

At 35-30° C

- Chills decrease.
- At approximately. 33° C, unconsciousness occurs.
- The skin turns blue.
- The pulse is irregular.
- Breathing is superficial.

The person has **hypothermia**.

Below 30° C

- The pulse is slow and irregular.
- Breathing has almost ceased.
- The pupils are large.
- The skin is reddish or reddish brown.

Chills are a very important symptom of cooling. A person shaking with cold has still maintained his or her normal means of defense against cooling.

Chills take a lot of energy. It is therefore important to administer fast-acting calories, e.g. in the form of hot strongly sweetened juice, to a person affected by cold.

Alcohol has no place in modern treatment of hypothermia.

Treating persons affected by cold

First aid: Prevent further heat loss. Wrapping with blankets and aluminum foil blankets. If the person is still conscious, give him / her warm sweetened drinks.

Active reheating with hot water: Place the person affected by cold in a reclined position covered by blankets. Remember to cover the head. Place hands, forearms, feet and calves in warm water until he/she has heated up. If available, put him / her in a warm bath (42-44 ° C, if possible). Arms and legs must be in the water.

Active heating if water is not available: Heat up the room as much as possible. Wrap the person in warm blankets, the head, arms and legs must be wrapped in the blanket. Two people in the same sleeping bag (the buddy principle). Plenty of hot strongly sweetened beverages, if he/she is conscious.

Treatment of hypothermic or cold injuries

Treating a person with hypothermia is more complicated than treating a person affected by cold.

You may experience trouble controlling their breathing, their heart and circulatory functions and the salt balance in their blood.

As a rule, active treatment of a hypothermic person takes place in a hospital.

Treatment under civilized conditions with a hospital nearby: If you have a very hypothermic patient who is lifeless and is experiencing circulatory collapse and you are fortunate enough that there is hospital in the immediate vicinity, initiate regular resuscitation with oxygen, artificial ventilation - intubation and monitoring of the heart rhythm, if possible, and external cardiac massage, and transport the patient to the local hospital.

The Reheating team or the Hypothermia team at the Thoracic Surgery Department at Aalborg University Hospital will be contacted at telephone no: (+45) 97 66 46 81.

They will generally be flown out to the local hospital and take over the treatment there.

According to the situation, the Hypothermia team will choose which treatment strategy is best.

It may be pouring 42 ° C warm saline into the pulmonary cavities or extra corporal circulation with the heart lung machine

If you are in a situation where hospital care is not nearby, you can choose two treatment principles:

1. Active heating in hot water:

Place the hypothermic person in a warm bath (42-44° C).

Arms and legs must be in the water.

Take care to ensure free airways.

If the person is not breathing, give mouth-to-mouth resuscitation.

If available, provide oxygen.

Heart massage should not be given, as one risks converting a very slow heart rate into ventricular fibrillation. DC conversion does not work in severely hypothermic patients.

This is by far the best treatment for a hypothermic person.

Be aware that the severely hypothermic persons do not have any peripheral circulation and, hence, no blood supply in the cold extremities. It is risky to heat cold extremities without blood supply using external heat. Oxygen consumption in the extremities increases without the blood supply being able to keep up. This can cause necrosis in the extremities and gangrene with consequent loss of limbs.

The term "after drop": Past discussions about keeping arms and legs outside the bath to avoid a fatal temperature drop ("after drop") must be considered obsolete.

During the initial 15-20 minutes' of reheating, a drop in body temperature may be seen – this temperature drop is called "after drop".

After drop has been known for many years, however, mortality has never been described as causing mortality.

It has been attempted to explain that after drop is caused by external reheating causing the return of cold blood from the arms and legs to the body core. This is said to cause further cooling of the heart, leading to the risk of blood pressure drop and cardiac arrest.

The condition was called reheating collapse.

After drop with reheating collapse does not exist. The slight drop in temperature that can be seen when active heating is started is due to heat conduction to the cold arms and legs from the body core and is of no importance.

In connection with reheating after short-term cooling, where there is no temperature equilibrium in the body, an after drop can be seen. This is explained by heat being released from the warmer body core to the overlying colder layers of the body.

Since after drop is due to rebalancing of small temperature differences and not to changes in circulating blood leading to temperature changes, it hardly has any impact on the functioning of the blood circulation.

Blood pressure drop during reheating is predominantly due to hypovolaemia caused by cold-induced urination and lack of fluid intake.

2. Passive reheating:

If it is not possible to carry out active reheating with hot water, you can choose to let the hypothermic person warm him or herself from within.

In passive reheating, the hypothermic person is wrapped in such a way that the heat production in the body warms the person up from within. He / she is wrapped in two blankets. Deepest in the blanket, the torso and both legs, towards the outer, arms, shoulders, head and neck.

It is important to wrap the head and neck.

If available, place an aluminum foil blanket between the person and the blankets.

You should not try to massage the arms and legs

Note:

- It is very difficult to distinguish between a hypothermic person and a dead person.
- A hypothermic person must not be declared dead till his or her body temperature is normal and there is no sign of life.
- Cease further cooling.
- Always start life-saving first aid

How to operate in cold?

When in a cold environment, you cannot always rely on thirst as a regulator of your fluid intake. Drink twice as much as normally, preferably 4-5 liters a day. In connection with hard physical labor, 7-8 liters a day.

Reduced fluid content in the body leads to poor circulation and, thus, poor heat distribution. It is similar to the state of shock

Keep a close eye on urine production:

- Ample light yellow urine means adequate fluid intake.
- Dark sparse urine: drink more

Clothing

Much heat is lost from the unprotected head and neck. At +5°C, 50% of the heat production of a resting person is lost from the head and neck.

If it is windy, heat loss increases. You do not feel this.

Cover your head and neck.

If your hands and feet are cold: wear a hat!

Avoid sweating in your clothes. Vent out clothing when you have a chance.

At night: If it is not possible to change your socks, sleep with them pulled halfway on. In this way, the lower part of the foot is isolated in the stocking shaft and the stocking foot can dry during the night.

If sleeping in a sleeping bag: immediately knock moisture out of sleeping bag in the morning

First aid in the cold

If a person has been injured in cold surroundings, he or she will always be more at risk for frostbite and general cooling than a non-injured person.

Reduced mobility, unconsciousness, pain, shock and fear are all factors that promote cooling.

In addition to regular first aid, which must always be initiated, in cold weather:

- provide hot, sweetened drinks.
- take care to cover the head and neck.
- place arms and legs against the warm body.
- in case of several injured persons, place them under the same cover with head and neck opposite each other, preferably with the feet under the coat of the person next to them.

Frostbite

In practice, frostbite only occurs on the face, hands and feet.

Frostbite is caused by tissue damage due to ice formation in the skin and underlying tissue.

The skin becomes white and firm.

Numbness in the hands and feet is the first sign of the onset of frostbite.

The first sign is, therefore: you do not feel anything

In case of numbness in the hands and feet, immediately try to increase the blood circulation by warming up.

It hurts, but it is a good pain. Life is returning to the tissue.

Categorizing frostbite

Frostbite is categorized into superficial and severe frostbite.

In the case of superficial frostbite, the skin can be moved over the underlying tissue, bones, muscles and joints. In the case of severe frostbite of the hands and feet, everything is frozen.

You do not experience pain in connection with frostbite

Treating frostbite

The treatment of frostbite consists of stopping the impact of the cold and then local heating.

Superficial frostbite is treated using local body heat, the "buddy" principle. (warm skin against cold skin).

Frostbite on the face is treated by placing a scarf or the like on the frozen area. This protects against further cooling and heat from within will thaw the frostbite.

Severe frostbite should be treated in a protected, preferably heated, room.

Severe frostbite must be thawed.

Treating non-thawed frostbite

Soak the frozen body part in warm water (approximately 44° C). The person assisting should just be able to keep their elbow in the water.

(The pain threshold is 45° C)

It hurts!

Treatment of a non-thawed frostbite

Bathing the frozen body part in warm water, with a temperature of approx. 44 ° C. The person assisting must just be able to keep his elbow in the water.

(The pain limit is 45 ° C)

It hurts!

Painkillers are needed, often Buprenorphine (page 4).

Treating thawed frostbite

During thawing, blisters are formed. They may be filled with blood, as seen in 2nd degree burns.

Leave the blisters untouched, unless they are very tense and painful.

The contents of the blisters are sterile and you risk infections if you lance them not using sterile instruments.

Cover the damaged area with silver suladiazine (Flamazine page 7) and a dry sterile dressing.

Leave the dressing untouched for 10 days if there is no evidence of infection in the frostbite.

A person with severe frostbite should be lying down and should be evacuated as soon as possible.

Remember, once you have had frostbite, the damaged area is more easily predisposed to getting frostbite again.

Wind-chill

The table shows cooling at different factors for cold and wind, converted to calm weather.

At a temperature reading below minus 30° C, there is a risk of frostbite on unprotected skin within minutes.

At a temperature reading below minus 60 ° C, there is a risk of frostbite within seconds.

Thus, the table does not apply to the total heat loss for a well-dressed person, only for the heat loss from the unprotected skin (face and hands).

Wind speed meters per second	Air temperature and equivalency temperature in degrees Celsius										
	+10	+5	0	-5	-10	-15	-20	-25	-30	-35	-40
Calm	+10	+5	0	-5	-10	-15	-20	-25	-30	-35	-40
2.5	+8	+4	-3	-9	-14	-19	-24	-30	-36	-41	-46
5.0	+6	+2	-6	-13	-18	-23	-27	-35	-42	-47	-52
7.5	+4	0	-9	-17	-22	-27	-31	-40	-48	-53	-58
10.0	+2	-3	-12	-21	-26	-31	-35	-45	-54	-59	-64
13.0	0	-6	-15	-25	-30	-35	-39	-50	-62	-65	-70
15.0	-2	-9	-18	-29	-34	-39	-43	-55	-68	-71	-76
18.0	-4	-12	-21	-33	-38	-43	-48	-60	-74	-77	-82
20.5	-6	-15	-24	-37	-42	-47	-51	-65	-80	-83	-88

Example of how to use the table:

At a temperature reading of 0 ° C (top line) and a wind speed of 13 meters per second, exposed unprotected skin is exposed to a cold factor equal to -15 ° C.