



### ***Frostbites – treatment and prevention in resource-limited setting***

**Target group & disclaimer:** The recommendation first and foremost targets non-professional caregivers and health care professionals without wound expertise. Professional caregivers may benefit additionally from the publications referenced below. The recommendations and guidelines will be chosen by a select group of EWMA experts with experience in wound management from war, crisis and emergency aid contexts. The guidelines are thus not based on a broad consensus.

#### **Practical file inspired by the:**

Wilderness Medical Society Clinical Practice Guidelines for the Prevention and Treatment of Frostbite: 2019 Update

Full text: [https://www.wemjournal.org/article/S1080-6032\(19\)30097-3/fulltext](https://www.wemjournal.org/article/S1080-6032(19)30097-3/fulltext)

PDF: <https://www.wemjournal.org/action/showPdf?pii=S1080-6032%2819%2930097-3>

Frostbites are common in cold climate and mainly affect extremities (hands, feet, nose, ears).

They are secondary to both direct action of cold (freezing tissues, water crystals formation) and reactive vasoconstriction).

As usual, prevention is important. The following actions may help prevent frostbites:

- Wear warm clothes, avoid humidity on them
- For hands, if possible use mittens instead of gloves
- Protect face and ears
- Use 2 layers of socks in shoes
- Choose shoes that are not too tight
- Do not touch frozen metallic surfaces with unprotected skin
- Learn to search for numbness due to cold
- Exercise to increase blood flow
- Drink to increase circulation
- Remove all jewellery or constrictive extracutaneous material

If a part of your body is frozen

- Remove all jewellery or constrictive extracutaneous material (to prevent further lesions)
- Decision making for thawing by rapid rewarming, two main cases:
  1. If you are not sure how to keep the part from refreezing, do not thaw, wait for a better moment, try to protect from further freezing.
  2. If the part can be thawed and kept warm enough not to freeze again, then rewarm



- Rewarming is more efficient if made rapidly in water bathes over 37 to 39 degrees Celsius.
- If you don't have a thermometer, the bath temperature should be controlled by hand. A caregiver's hand should be able to stay 30 seconds in the bath without pain.
- If the place you are working in is cold, think of controlling the bath more often to keep it at the right temperature.
- Duration is for 30 minutes or until affected tissues become smooth again.
- Rewarming by other methods such as open fire, oven, fireplace can prove dangerous as heat is not controlled and can lead to further damages (burns).
- As dehydration will potentially diminish blood flow, rehydration must be quick with warm drinks.
- If intravenous fluids are available, rehydration can be made that way. Optimally the fluid should be between 39-42°C. Small (250 ml) boluses should be preferred as they will keep the heat.
  
- **In both cases:**
- Protect the affected area against cold but also direct mechanical injury
- Keep the skin dry (when not in warm bath), do not rub the skin.
- Ibuprofen can be used both for pain control but also to limit vasoconstriction
- If using dressing, try to keep them loose enough as if edema appears, there will be no tissue compression.
- If edema appears, try to set the affected place above heart level
- Do not remove blisters, in case they are painful, aspirate the liquid with a needle or make a very small hole to evacuate. The top of the blister is an optimal dressing