**CAP health & wellness** HSO Briefing: COLD WEATHER INJURIES

**Purpose:**

|  |
| --- |
| (U) **Bottom Line:**   * Risk to populations**: very low** **| low** | **moderate** | **high** * **Potentially serious soft tissue injuries that are largely preventable by proper clothing and precautions.** * **Related to outdoor activities in extreme weather** |

**Overview:**

There are two cold weather injuries considered in this presentation, one minor and one potentially serious

**FROSTNIP**: (minor)

The skin is not frozen but has a characteristic pale appearance due to spasm of the arteries supplying the skin.

* + Occurs on exposed skin of face, ears, or nose
  + May notice a "frosting" of superficial ice crystals on the surface of the skin
  + May progress to frostbite if not treated

**Prevention and treatment of frostnip**:

* + Assignment of buddy pairs to watch each other
  + Cover the skin with appropriate clothing
  + Warm the affected skin
    - Direct skin-to-skin contact
    - Warm breath on affected skin
    - Shelter from elements

**FROSTBITE: (potentially serious)**

* + In frostbite, the skin and soft tissues are frozen.
  + Extent of injury depends on depth of frozen tissue.
    - Initially there is spasm of the arteries supplying the tissue
    - Results in tissue injury due to lack of blood supply and results in numbness
    - Ice crystals form inside the soft tissue cells resulting in cell injury or death
    - Thawing causes an inflammatory response
    - The inflammation can cause destruction of the small arteries with death of tissue.
    - These changes are worsened if thawed tissue is permitted to refreeze
  + In deep frostbite there is potential for significant tissue loss.
  + Frostbite is a preventable injury with proper preparation

**SUPERFICIAL FROSTBITE**

* + The frozen tissue is limited to the skin
  + Little permanent tissue destruction
  + Some tissue swelling
  + Clear fluid-filled blisters may develop on thawing

**DEEP FROSTBITE**

* Freeze injury is deeper than skin level and may involve muscles and bone.
* Characterized by tissue swelling and bloody fluid in blisters when thawed.
* There will likely be soft tissue loss resulting from amputation

**TREATMENT OF FROSTBITE**

* First objective is to prevent further injury
* Do not allow tissue to thaw if there is any risk of the tissue freezing again
* Remove tight or constricting clothing, tightly laced boots, and jewelry, especially finger rings
* Do not bandage tightly
* A person is not able to walk on a frostbitten foot or leg
* ABSOLUTELY NO SMOKING
* No alcoholic beverages as they give the feeling of warmth due to dilation of small blood vessels resulting in increased heat loss

**Thawing frozen tissue:**

**Passive thawing**

* Permit thawing only if there is no danger of the extremity refreezing
* Protect from further injury by application of bulky dressing
* Allow the tissue to thaw naturally with no external heat source
* Do not allow the patient to walk on the frostbitten foot or leg
* Support the patient with warm liquids and high carbohydrate fluids
* Assist the patient in taking his own ibuprofen or other non-steroidal anti-inflammatory
* Do not allow the patient to smoke

**Rapid thawing**

* + Only if there is no danger of refreezing
  + Use a WARM water bath
  + DO NOT EXPOSE FROSTBITTEN EXTREMITY TO AN OPEN FLAME OR FIRE
  + Carefully monitor the water temperature with a thermometer if available
  + DESIRED temperature is 98-102 F (despite what the graphic says!)
  + Remember the frostbitten extremity is numb!
  + Protect from further injury
  + Apply a sterile, dry, bulky dressing that is loose
  + Do not allow the patient to walk on the frostbitten foot or leg
  + Support the patient with warm liquids and high carbohydrate fluids
  + Assist the patient in taking his own ibuprofen or other non-steroidal anti-inflammatory
  + Do not allow the patient to smoke

***Recommendations:***

**Remember the adage that "prevention is better than treatment"**

Maintain body temperature

* Dress in layers
* Stay dry!
* Wear a hat and suitable gloves
* Avoid tight fitting clothing or boots
* Cover exposed skin

Eat enough carbohydrates

Pay attention the weather

NO SMOKING!

**Questions**: **Contact your Region/Wing/Unit Health Services Officer or**

Lt Col Thomas Janisko, CAP

Senior Program Director, Health Services, NATCAP

202-761-0348 / Thomas.Janisko@usace.army.mil