

# Armenian Hiking Society



# HI EVERYBODY



A microscopic image showing a dense field of blue, needle-shaped crystals, characteristic of cholesterol crystals. The crystals are arranged in various orientations, some showing distinct striations. The background is a lighter, granular texture.

# Frostbite

Presented by  
Doctor  
Vartan Ayyvazian

# Frostbite

Skin or other tissues freezing

Commonly affecting the fingers, toes, nose,  
Ears, cheeks and chin (Hands and feet)

## Symptoms

1-Color change

2-Swelling

3-Blistering (Vesicles)

4-Compartment Syndrome

Severe pain

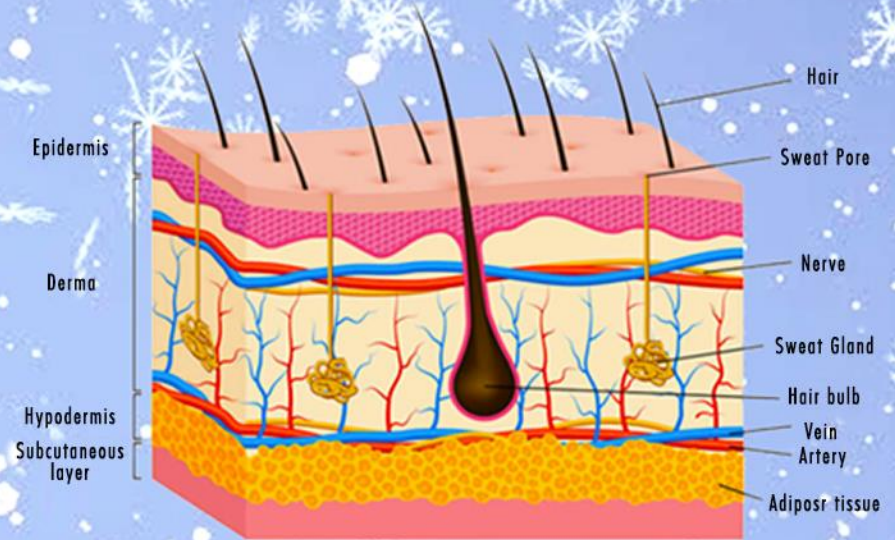
Poor pals

Decreased ability to move

Numbness

Pale color limb

## SKIN ANATOMY



# Risk Factors

Greatest risk

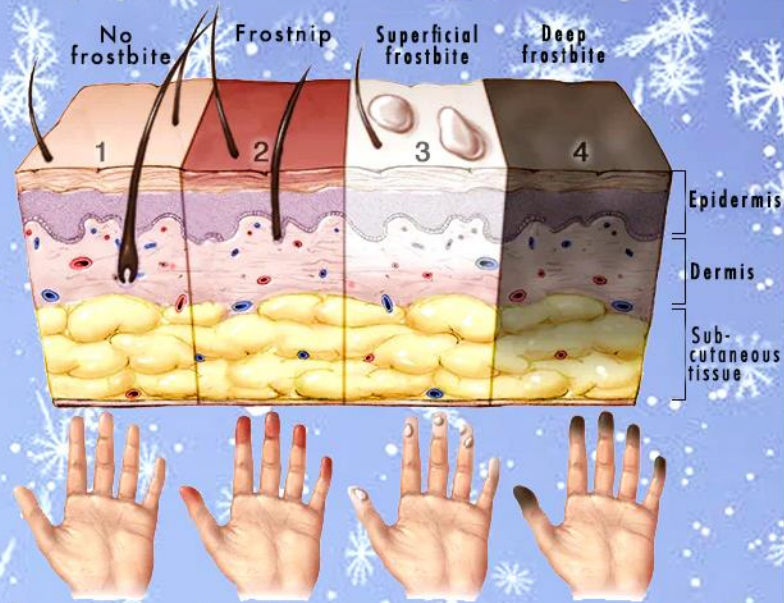
- 1-Winter sports
- 2-Military personnel
- 3-Homeless

- A- Drinking alcohol
- B- Smoking
- C- Mental health problems
- D- Medication
- E- Prior injuries due to cold
- F- Dehydration & Malnutrition

## Types of Frostbite

Superficial (first and second degree)

Deep (3rd and 4th degree)



**First degree —> Numbness, Burning, Swollen, Redness border, Skin's surface may slough off**

**Second " —> Skin's surface hardness, Clear blisters, Hardened skin, blistered dries. blackens and peels, cold sensitivity and numbness develop**

**Third degree —> Blood blisters, blue-gray skin, pain persist, blacked crust develops, long term ulceration can damage [GROUTH PLATE]**

**Forth degree—> Colorless skin, skin black and mummified, amount of permanent damage can take one month or more to determine**

**Auto amputation can occurs after 2 months**

# STAGES OF FROSTBITE



## Normal

Skin without cold damage.



## Frostnip

Mild frostbite that irritates the skin, causing redness and a cold feeling followed by numbness.



## Superficial frostbite

Skin feels warm, a sign of serious skin involvement. A fluid-filled blister may appear 24 to 36 hours after rewarming the skin.



## Deep frostbite

You may experience numbness. Joints or muscles may no longer work. Large blisters form 24 to 48 hours after rewarming. Afterward, the area turns black and hard.

## SYMPTOMS OF FROSTBITE

- At first, cold skin and a prickling feeling
- Numbness
- Red, white, bluish-white or grayish-yellow skin
- Hard or waxy-looking skin
- Clumsiness due to joint and muscle stiffness
- Blistering after rewarming, in severe cases



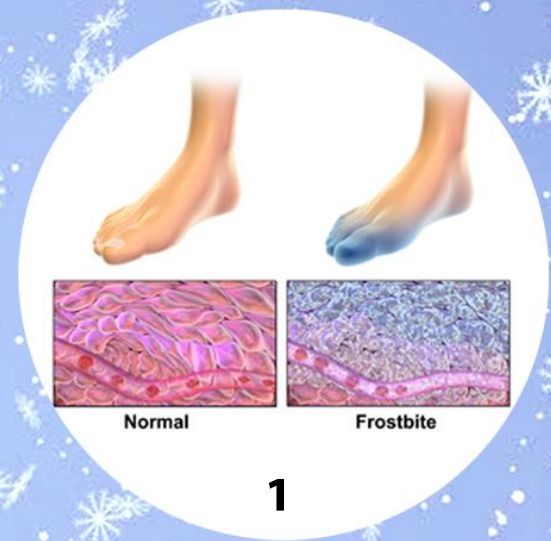
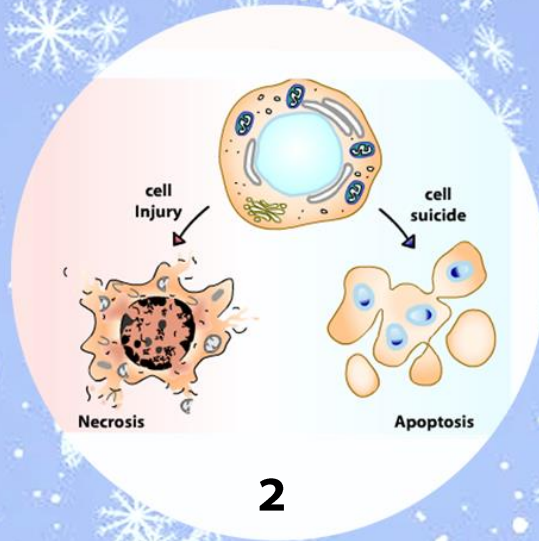
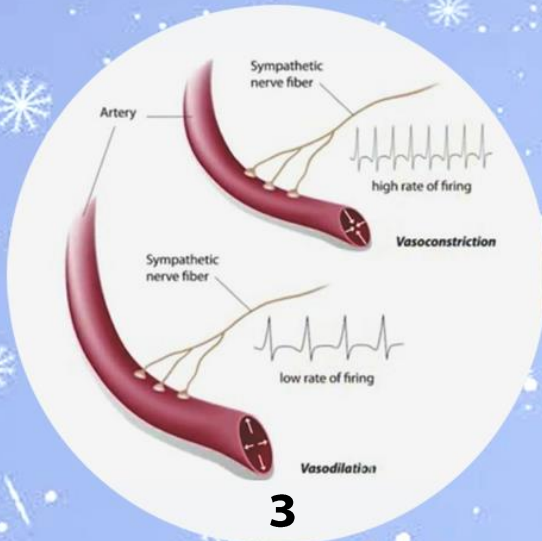
# The Effect of Frostbite on the body

THE EFFECT OF FROSTBITE ON THE BODY

1. Vasoconstriction

2. Damage at the cellular level and cell membrane.

3. Ice crystals can damage small blood vessels.





# DEATH TRIANGLE

- 1- Environmental Temperature
- 2- Wind Spread
- 3- The length of time

Celsius To Fahrenheit

$$F = \frac{9}{5}C + 32$$

Fahrenheit To Celsius

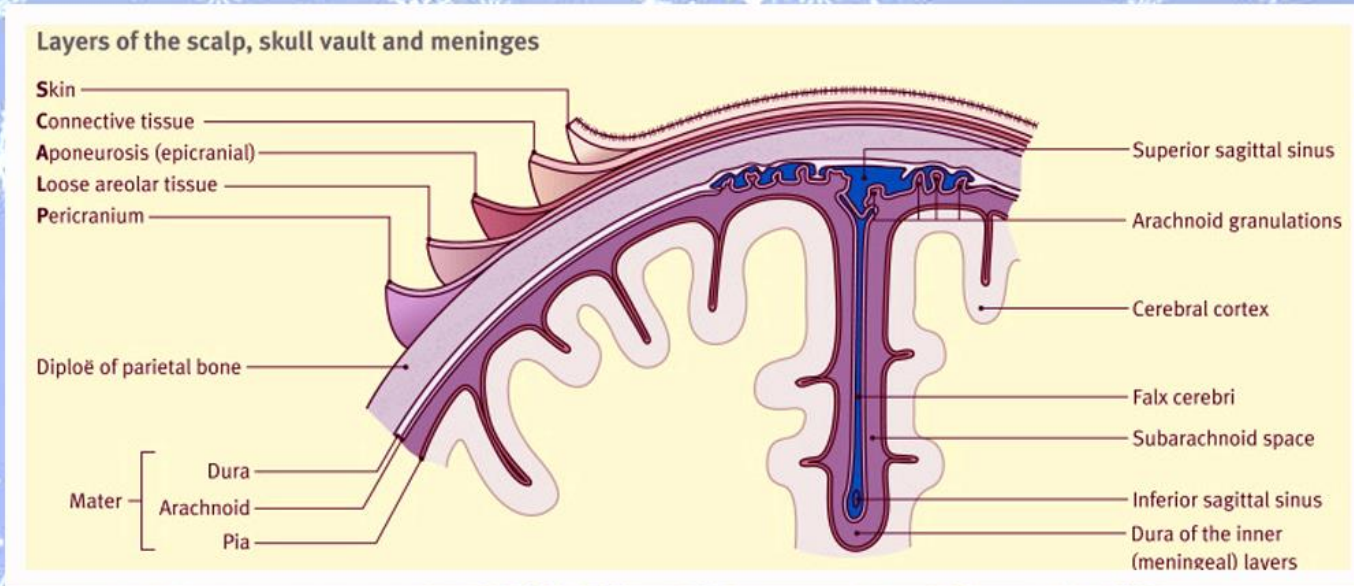
$$C = \frac{5}{9}(F - 32)$$

**Fahrenheit And Celsius  
Conversion**

Wind Chill Chart												
Local Temperature (° F)												
Wind Speed (MPH)	32	23	14	5	- 4	- 13	- 22	- 31	- 40	- 49	- 58	
Calm	32	23	14	5	- 4	- 13	- 22	- 31	- 40	- 49	- 58	
5	29	20	10	1	- 9	- 18	- 28	- 37	- 47	- 56	- 65	
10	18	7	- 4	- 15	- 26	- 37	- 48	- 59	- 70	- 81	- 92	
15	13	- 1	- 13	- 25	- 37	- 49	- 61	- 73	- 85	- 97	- 109	
20	7	- 6	- 19	- 32	- 44	- 57	- 70	- 83	- 96	- 109	- 121	
25	3	- 10	- 24	- 37	- 50	- 61	- 77	- 90	- 104	- 117	- 130	
30	1	- 13	- 27	- 41	- 54	- 68	- 82	- 97	- 109	- 123	- 137	
35	- 1	- 15	- 29	- 43	- 57	- 71	- 85	- 99	- 113	- 127	- 142	
40	- 3	- 17	- 31	- 45	- 59	- 74	- 87	- 102	- 116	- 131	- 145	
45	- 3	- 18	- 32	- 46	- 61	- 75	- 89	- 104	- 118	- 132	- 147	
50	- 4	- 18	- 33	- 47	- 62	- 76	- 91	- 105	- 120	- 134	- 148	
Little Danger For Properly Clothed Persons			Considerable Danger				Very Great Danger					
Danger From Freezing of Exposed Flesh												

**SCALP—->**

- 1. Skin**
- 2. Connective tissues**
- 3. Aponeurosis**
- 4. Loose areola tissue**
- 5. Pericranium**



# PREVENTION PREVENTION

- 1- Wearing proper, fully-covering clothing**
- 2- Maintaining hydration and nutrition**
- 3- Minimizing strenuous physical activity**



# What you can do in the meantime

- 1- Should go to a protected environment
  - 2- Removing wet clothing
  - 3- Get warm fluid (105 to 110 F) (40 to 43)
  - 4- Warmed in the groin or underarm
  - 5- Fluid should be given
  - 6- Pain reliever
  - 7- Not walking on frostbitten feet
- a-Check for hypothermia



# Do's and Don'ts of Frostbite First Aid

If you do get frostbite, talk to your doctor. Frostbite can cause serious injury.

## Don't Use Fire



It can burn frostbitten flesh

## Do Use Body Heat



Unlike fire, this cannot burn you

## Don't Rub



Rubbing can break frostbitten skin

## Do Use Warm Water



This is a gentler way to warm up

## Don't Put Pressure



Don't walk on frostbitten feet!

## Do Support + Stabilize



Stabilize and pad the injured area

# Hypothermia

a- Body temperature —> 95 F or less (35 C or less)

• Normal —> 97.7 - 99.5 F

b- Intense shivering

c- Slurred speech

d- Fumbling hands (handshake)

e- Drowsiness

f- Loss of coordination

Mild —> shivering and mental confusion

Moderate —> shivering stops and confusion increases

Severe —> paradoxical undressing



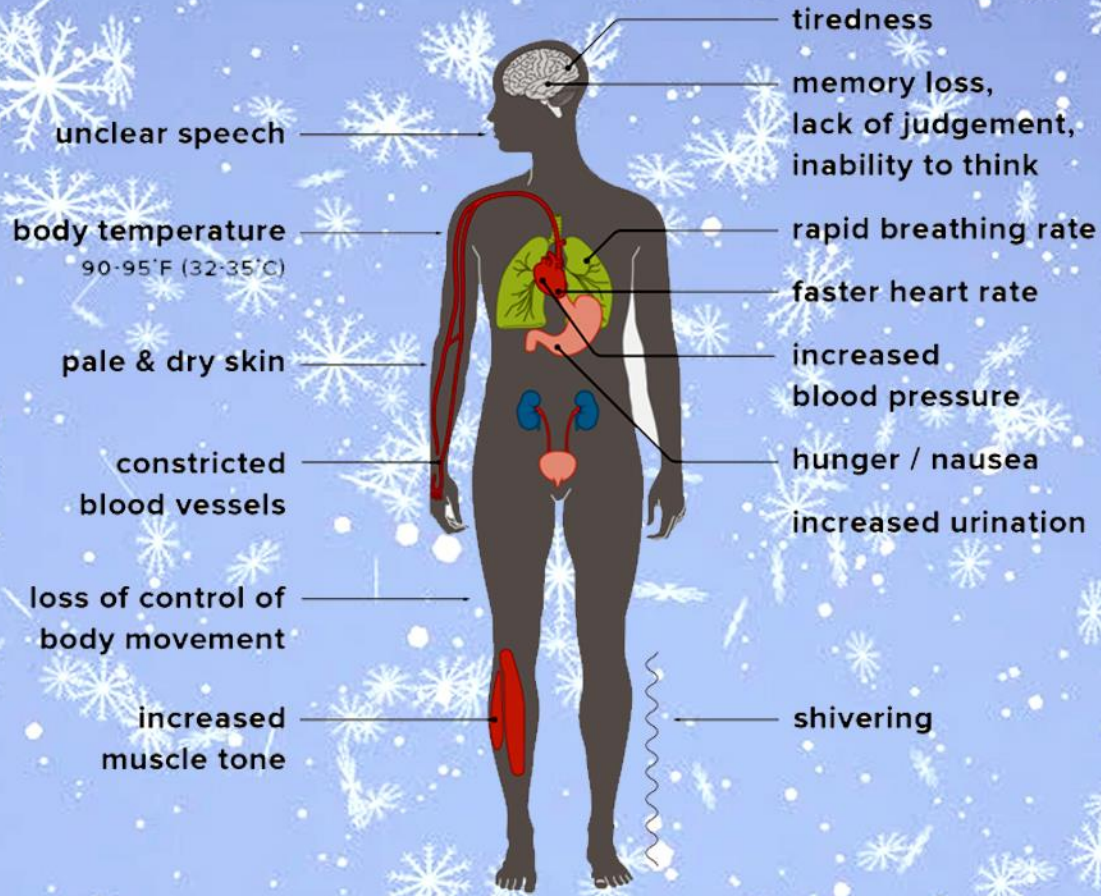
# **WMS (Wilderness Medical Society)**

- 1- Avoiding constrictive footwear and clothing**
- 2- Covering the skin and scalp**
- 3- Remaining active without causing exhaustion**
- 4- Oxygen might be of use at high elevation**
- 5- Avoiding temperature below 5F → -15F**
- 6- Avoiding moisture from sweat and emollients**
- 7- Avoiding alcohol and drug**
- 8- Layering clothing**
- 9- Using chemical or electronic warming device**
- 10- Recognizing early signs of Frostbite**



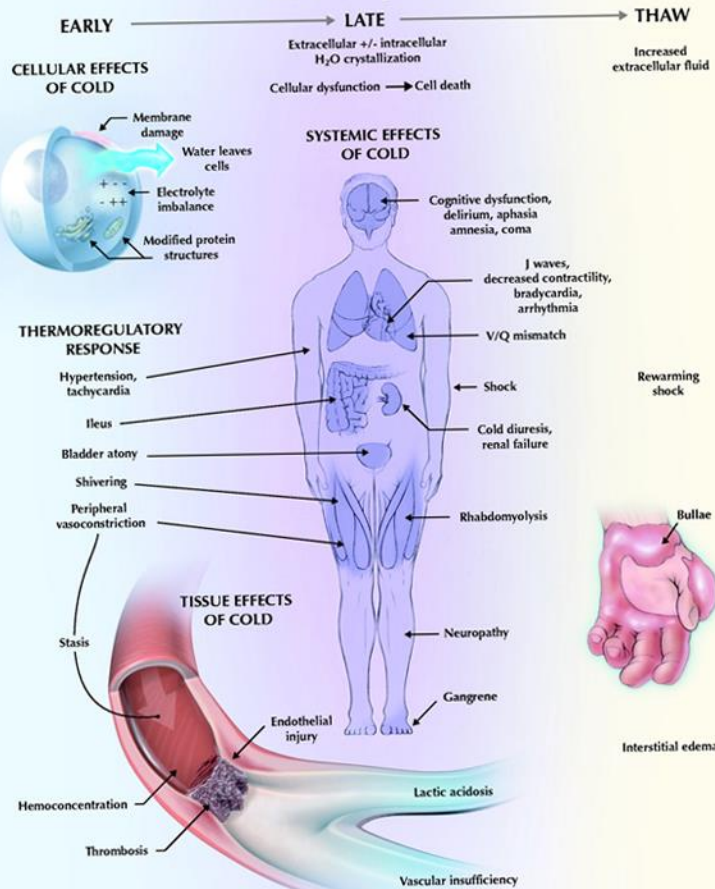
# MILD HYPOTHERMIA

effects on the body





# COLD INJURY



# How the frost bites

nose  
ears  
chin  
cheeks



fingers

toes

## Signs&symptoms

- redness or pain
- a white or grayish-yellow skin
- unusually firm or waxy
- numbness

## Treat

- seek medical attention
- warm room or shelter
- remove any wet clothing

- do not use a heating pad or electric blanket for warming
- not warm alcohol
- do not rub or massage areas with frostbite



**Frostbitten**  
Frostbitten

**Limbs**  
Limbs





**Frostbitten**  
Frostbitten



**Limbs**  
Limbs



**How to Avoid, &**  
HOW TO AVOID &



**Treat Frostbite**  
TREAT FROSTBITE

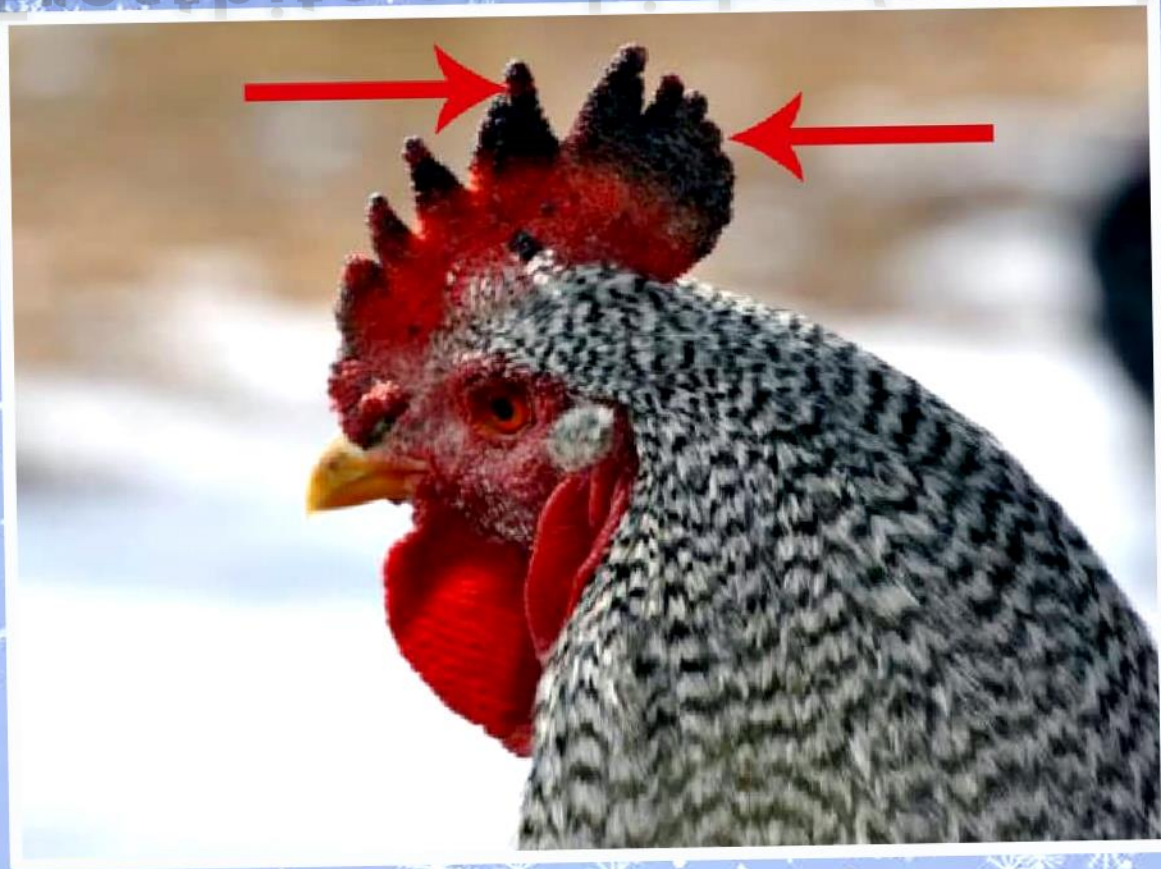
# Frostbitten Face



# Frostbite on Toes



# Frostbite on chicken's comb



Glendale April 2022

Thank you all for your participation  
I hope that you found the presentation useful and informative.

Hope to see you all on the slopes, for a great spring hiking adventures.

Happy hiking to all.

Be safe and enjoy the nature.







THAT'S IT GUYS!

Beer time



# Armenian Hiking Society

