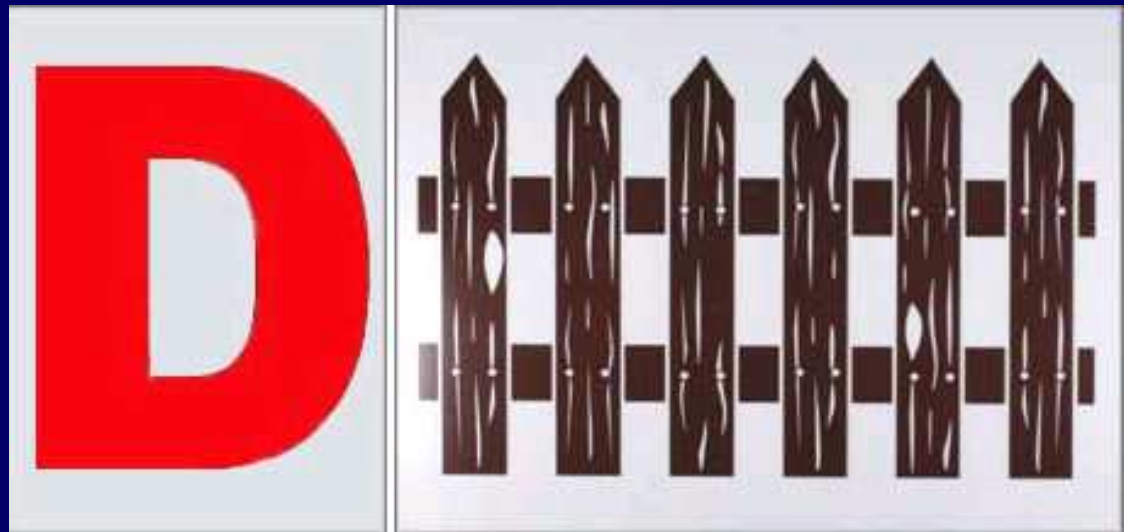


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# Your Body's Defense

EQ: What is your body's second line of defense against disease?



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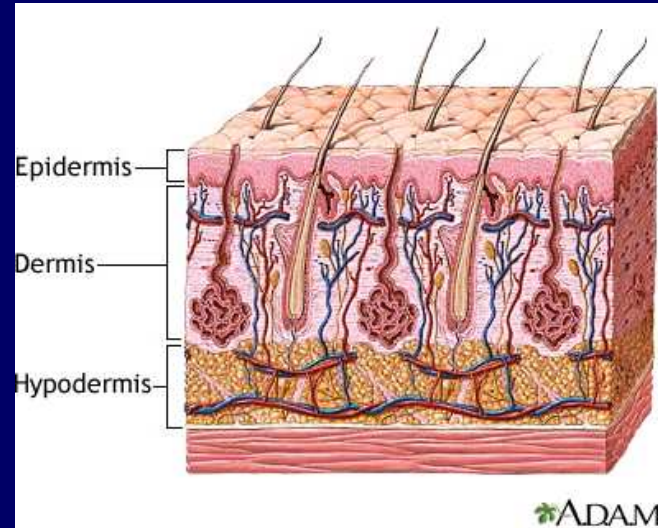
# Physical Defenses

## First line of defense

- Skin
- Hair
- Mucous
- Cilia
- Saliva
- Tears
- Sweat
- Digestive tract



# Skin



- Protects from micro-organisms entering the body
- Open cuts/ sores provide entrance
- Cells die and are shed

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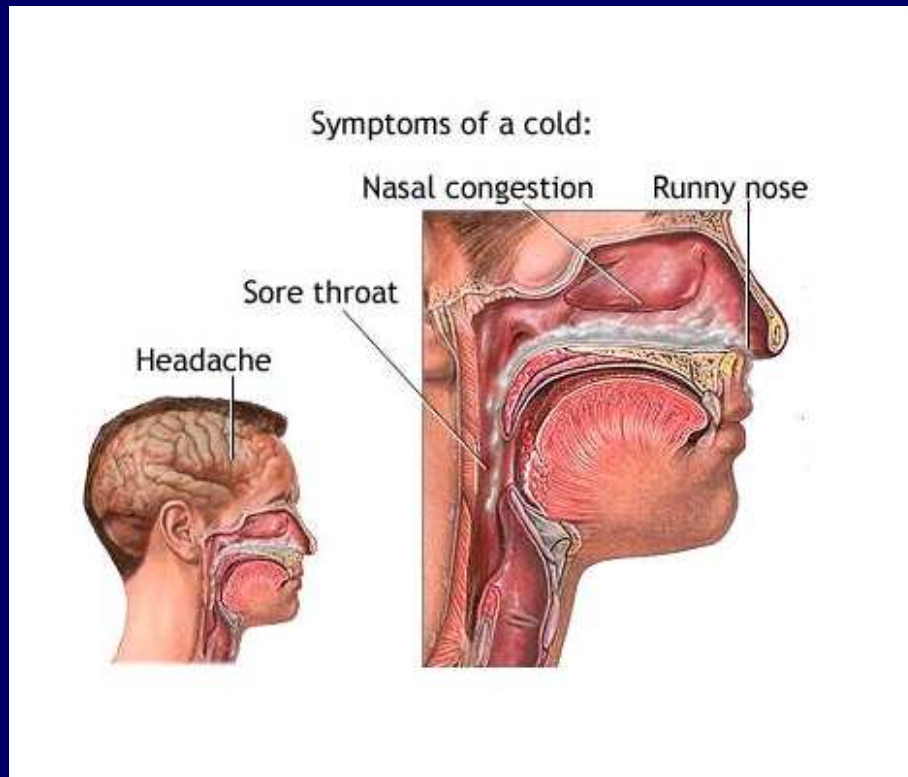


# Sweat

- Our body has many sweat glands
- Sweat is released to control body temp
- **Sweat contains acids that kill pathogens**

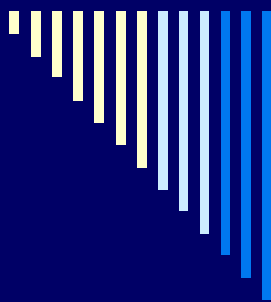


# Mucous Membranes



- ❑ Moist linings around all entrances to body
- ❑ Covered with mucous
- ❑ Mucous = sticky substance
- ❑ **Mucous traps pathogens**
- ❑ Mucous is released from body

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# Saliva & Tears

- Contain enzymes that fight pathogens
- Tears wash away foreign substances

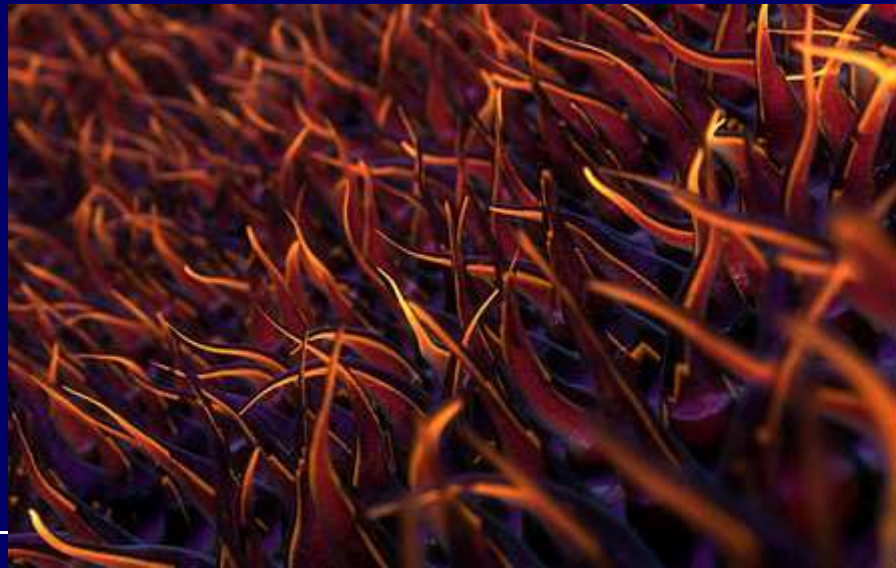


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# Cilia

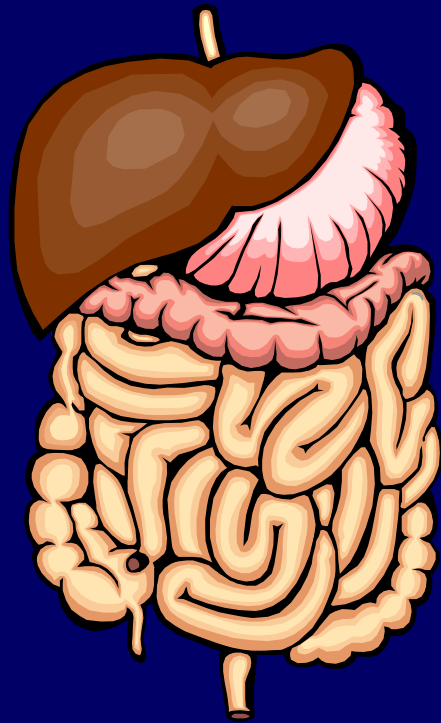
- Tiny hair-like structures
- Trap pathogens
- Help remove mucous from body



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# Digestive Tract



- Moves pathogens out of body
  - Acids/ chemicals in digestive tract
  - Mouth/Esophagus/ Stomach/ intestines
  - Chemicals kill pathogens
-



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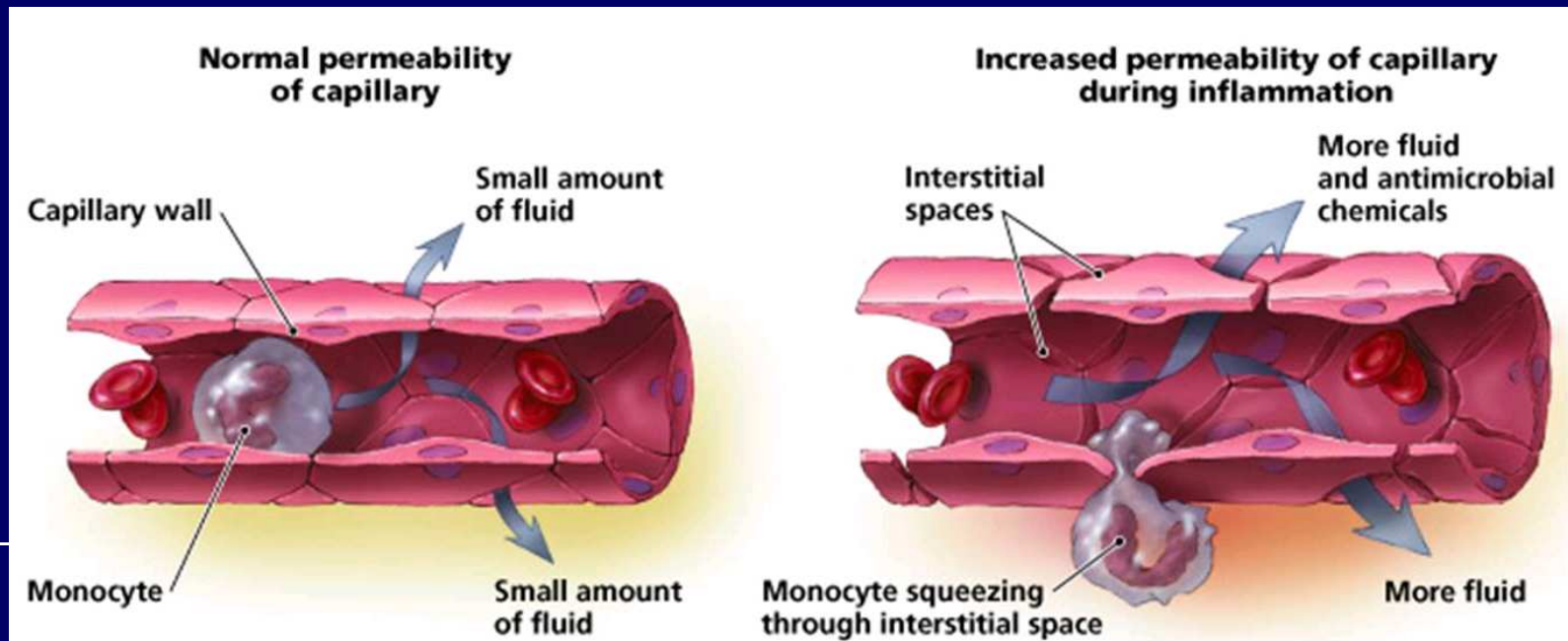
## Second Line of Defense

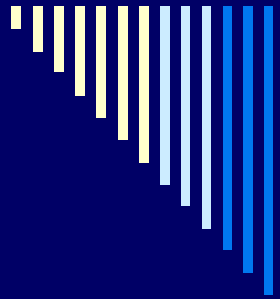


- Occurs after pathogen enters the body
  - Inflammation
-

# Inflammation

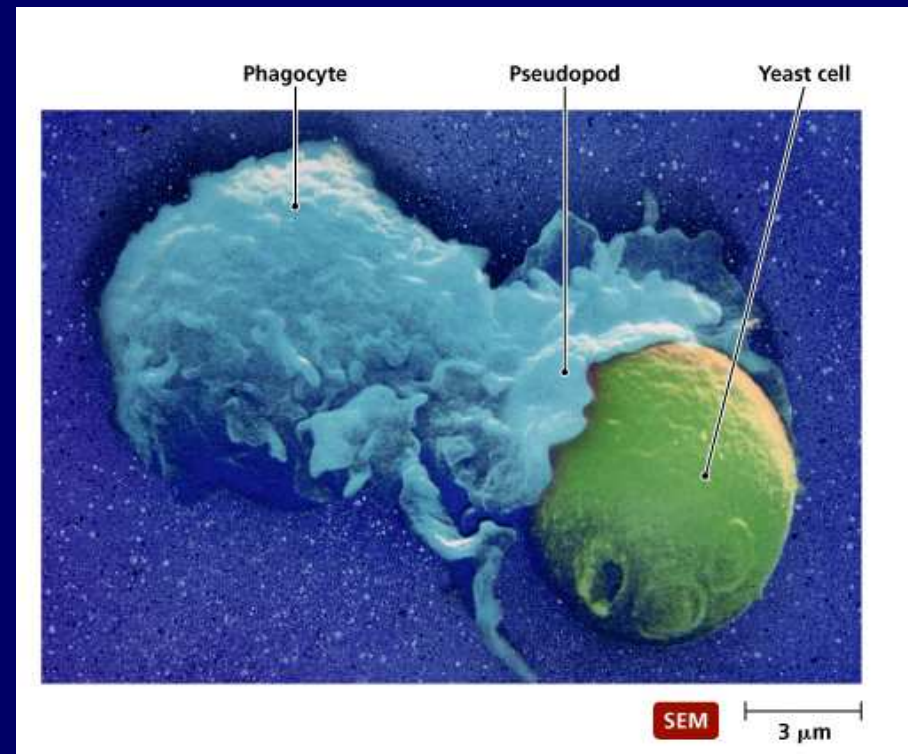
- 1<sup>st</sup> stage of healing
- Increased blood flow to area
- Increased size/ temperature/ redness
- Caused by dilation of blood vessels



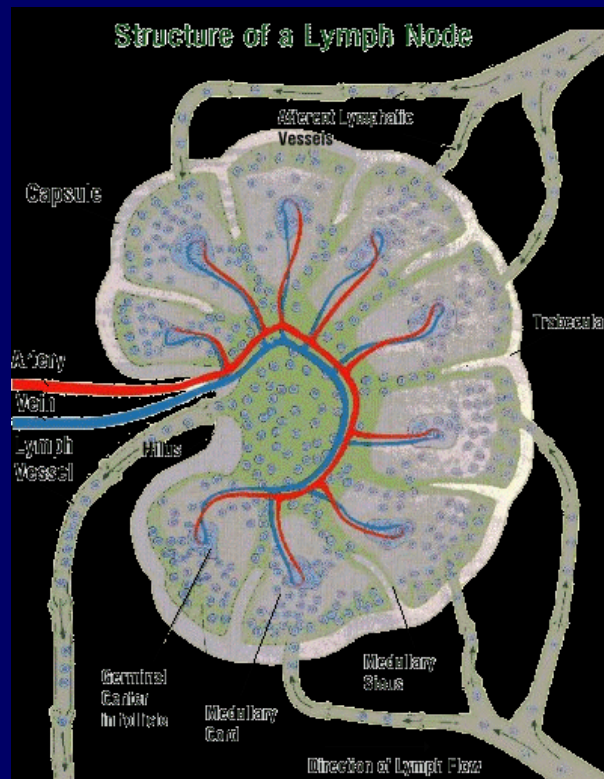


# Phagocytes

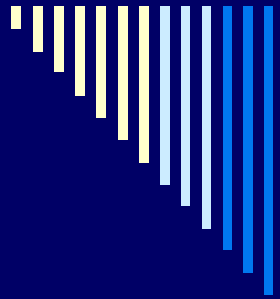
- Blood brings phagocytes & chemicals
- Phagocytes = white blood cells
  - Digest pathogens, dead cells, waste
- Chemicals
  - Kill pathogens & start tissue healing



# Immune System

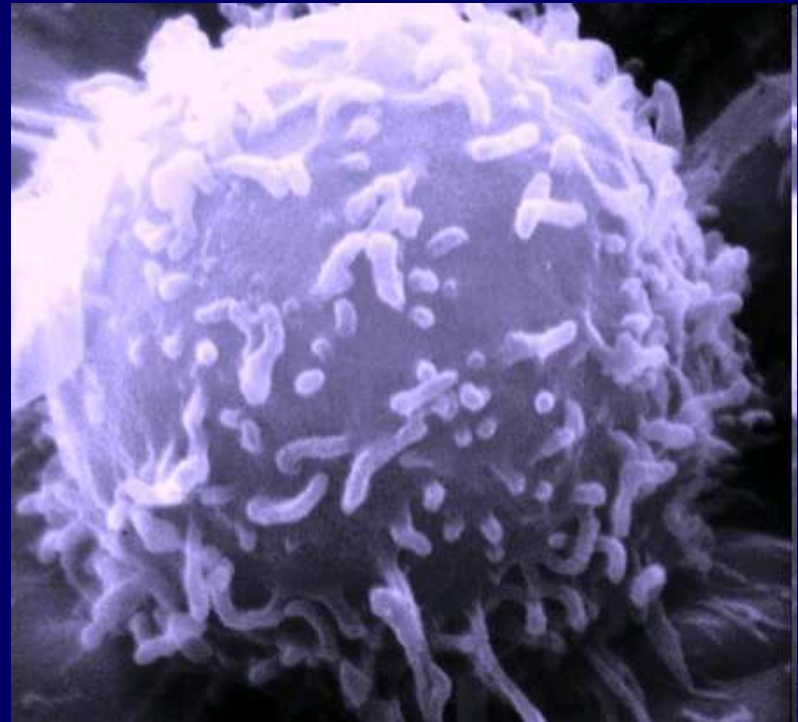


- Last line of defense
- Lymphatic system, lymph nodes, lymph, lymphocytes
- Lymph nodes store and filter lymph
- Lymph - fluid containing lymphocytes
- Lymphocytes - white blood cells



# Lymphocytes

- B-cells & T-cells
- T-cells
  - Produce interferon- warns cells about pathogen
  - Kill some pathogens directly
- B-cells create antibodies
  - Antibodies bind to pathogens/ toxins until phagocytes find them



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# LEFT SIDE ACTIVITY

- Write a one page summary that explains how the immune system protects us from disease.
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