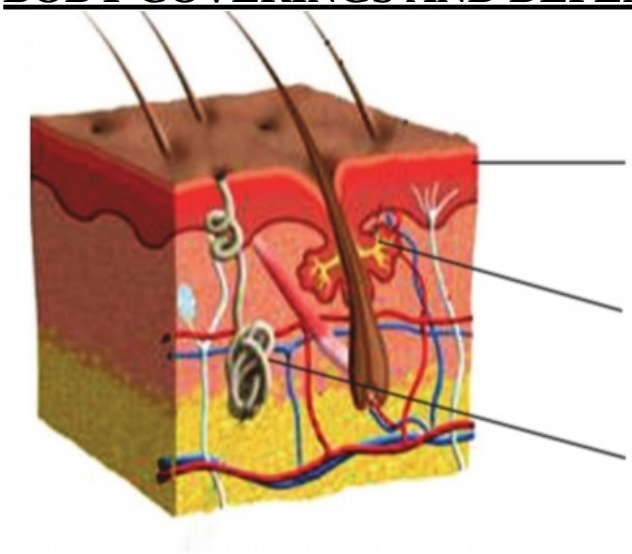
FOCUS POINT

SOLDIERS OF DEFENSE

BODY COVERINGS AND DEFENSE



Epidermis : A protein called keratin present here prevents the entry of germs.

Sebaceous gland : Sebum produced by the gland makes the skin oily and water proof.

Sweat gland : The disinfectants present in the sweat produced by this gland destroys the germs.

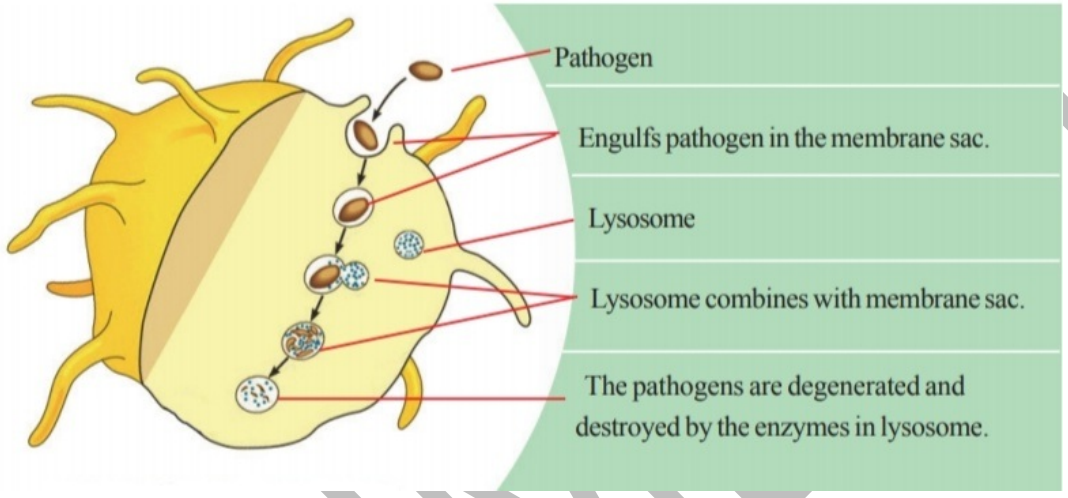
BODY SECRETIONS AND DEFENSE

PART OF THE BODY	SECRETION	ACTION IN DEFENSE
Skin	Sweat	It kills the germs
Nose	Mucus	Trapped the pathogens and destroy them
Ear	Ear wax	Prevents the entry of germs through auditory canal
Mouth	Lysosome in saliva	Lysosome destroy the germs that enter through the food in the mouth
Eye	Lysosome in tear	Kills the germs that enter into the eye
Stomach	Hydrochloric acid	It kills the germs that enter in to the stomach through food
Intestine	Mucus	Kills the germs
Urethra	Lysosome in urine	Destroy the germs.

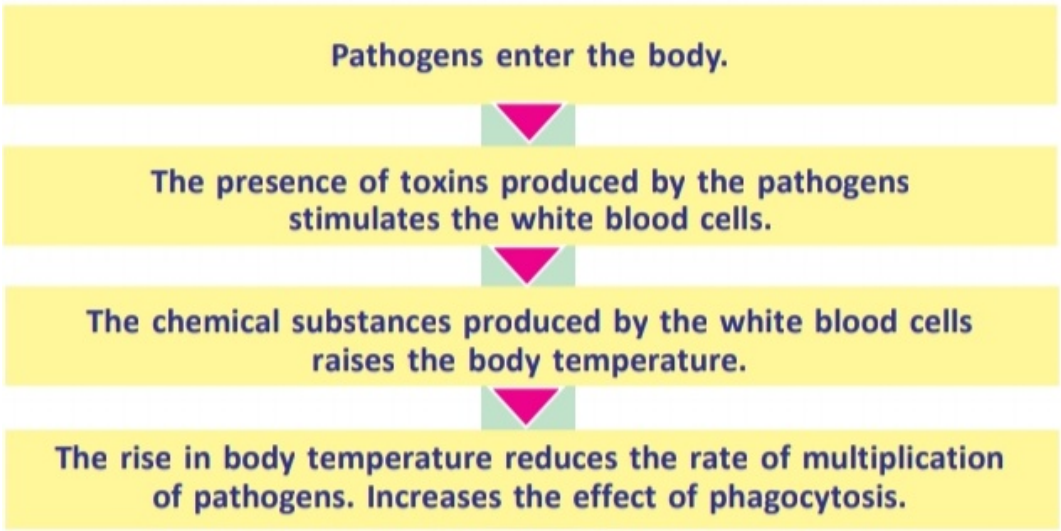
PHAGOCYTOSIS

Phagocytosis is the process of engulfing and destroying of germs.
The cells that are engaged in this process are called phagocytes.
Monocytes and neutrophils are the examples of phagocytes.
STEPS

- **Pathogens enter inside the body.**
- **Phagocytes reach near the pathogen.**
- **Phagocytes engulf the pathogen in the membrane sac.**
- **Lysosome the phagocytes combines with the membrane sac.**
- **The pathogens are degenerated and destroyed by the enzyme in lysosome**



FEVER A DEFENSE MECHANISM



VACCINES AND ITS COMPONENTS

Vaccines are the substances used for artificial immunisation.

COMPONENTS

a) Components from alive or dead or neutralised germs
b) Neutralised toxins or cellular parts of the pathogen.

WORKING OF VACCINES

- These act as antigens that stimulate the defense mechanisms of the body.
- Antibodies are formed in the body against them.
- These antibodies are retained in the body which in future protect the body from the pathogen responsible for the same disease.

VACCINES AND DISEASES

VACCINE	DISEASES
B.C.G	**Tuberculosis**
O.P.V	**Polio**
Pentavalent	**Diphtheria** **Pertussis** **Tetanus** **Hepatitis-B** **Haemophilus influenza-B**
M.M.R	**Measles** **Mumps** **Rubella**
T.T	**Tetanus**

ANTIBIOTICS AND SIDE EFFECTS

Medicines that are extracted from microorganisms like bacteria, fungi, etc. and used to destroy bacteria are called antibiotics.
They can be used externally and internally.

SIDE EFFECTS

- **Regular use develops immunity in pathogens against antibiotics.**
- **Destroys useful bacteria in the body**
- **Reduces the quantity of some vitamins in the body.**

BLOOD GROUPS-ANTIGENS AND ANTIBODIES

BLOOD GROUP	ANTIGENS	ANTIBODIES
A	A	A
B	B	B
AB	A and B	Nil
O	Nil	a and b

In addition to antigen A and B another antigen called D or Rh factor is present in the membrane of red blood cells of certain person.
The blood groups in which Rh factor is present are known as positive blood groups and those without Rh factor are called negative blood groups.

BLOOD TRANSFUSION

- **People in the age group 18-60can donate blood.**
- **Blood donation can be done once in three months.**
- **Blood donation causes no problems to the donor's health.**
- **Pregnant women and breast feeding mothers should not donate blood.**
- **Persons with communicable diseases(transmitted through blood) should not donate blood**

When a foreign antigen reaches ones blood, it stimulates the defense mechanism. On receiving unmatching blood, the antigen present in the donor's blood and the antibody present in the recipients blood will react with each other and form a blood clot. Hence, everyone cannot receive blood from all blood groups.

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