جامعة اشور - كلية طب اسنان

BLOOD FILM

DR.BAN ABDULSATTAR

PHYSIOLOGY LAB 2

BLOOD FILM OR BLOOD SMEAR

IS A THIN LAYER OF BLOOD SMEAR ON A MICROSCOPE SLIDE AND THEN STAINED IN SUCH A WAY TO ALLOW THE VARIOUS BLOOD CELLS TO BE EXAMINED MICROSCOPICALLY

THE AIM:BLOOD FILMS ARE USUALLY EXAMINED TO INVESTIGATE HEMATOLOGICAL PROBLEMS (DISORDERS OF THE BLOOD LIKE ANEMIA, POLYCYTHEMIA AND LEUKEMIA).

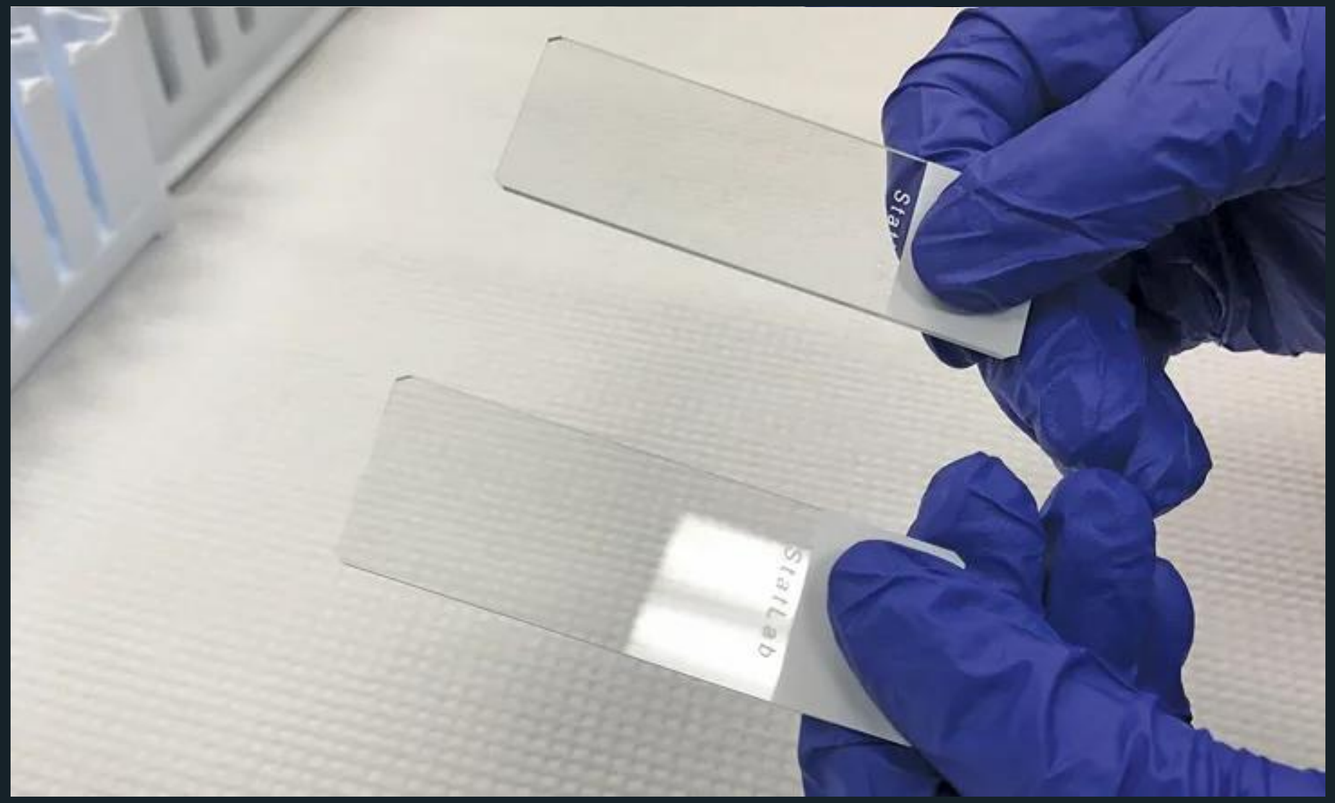
PRINCIPLES

BLOOD FILM ENABLES US TO EVALUATE WBC, RBC, AND PLT MORPHOLOGY, ALSO, TO PERFORM DIFFERENTIAL WBC COUNT,

ESTIMATION OF WBC AND PLATELETS COUNTS CAN BE DONE ON BLOOD FILMS.

BLOOD FILMS ARE MADE ON GLASS MICROSCOPIC SLIDES.

PRINCIPLES



glass microscopic slides.

SAMPLE



Finger blood may be used

blood must be made immediately. All specimens should be free of clots.

PROCEDURE

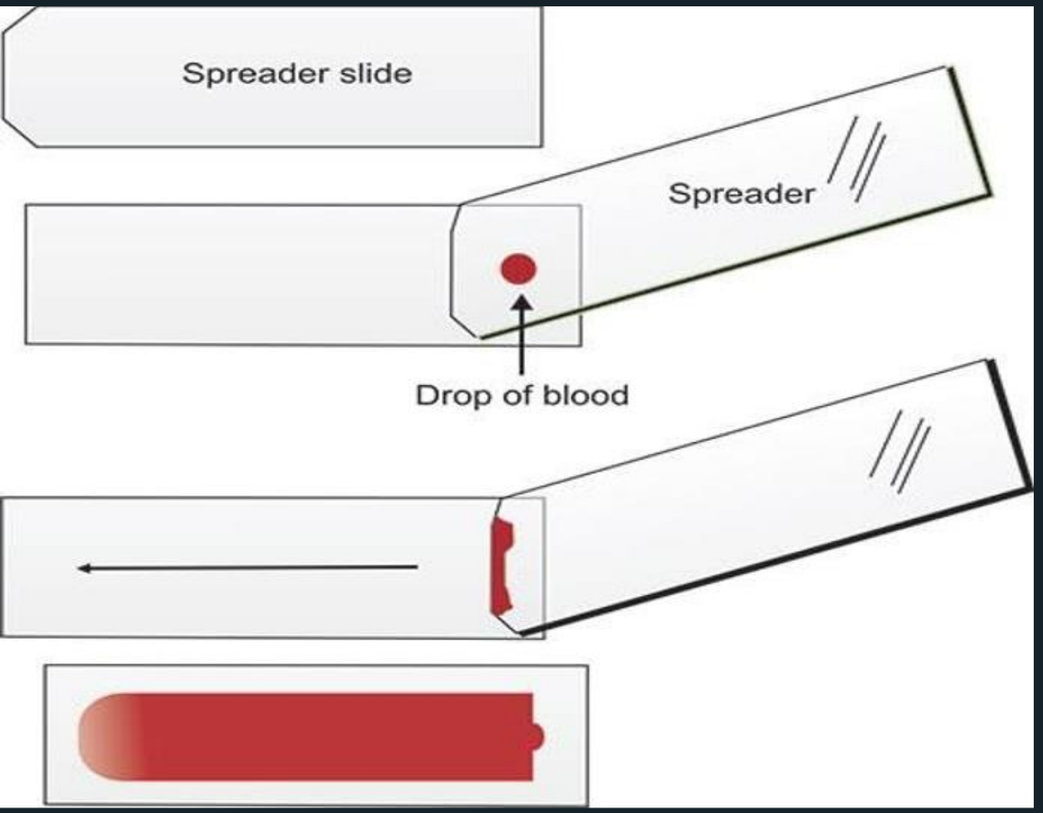
Use standard size glass slides (3 inch x 1 inch = 7.5 cm x 2.5 cm), wiped from dust just immediately before use

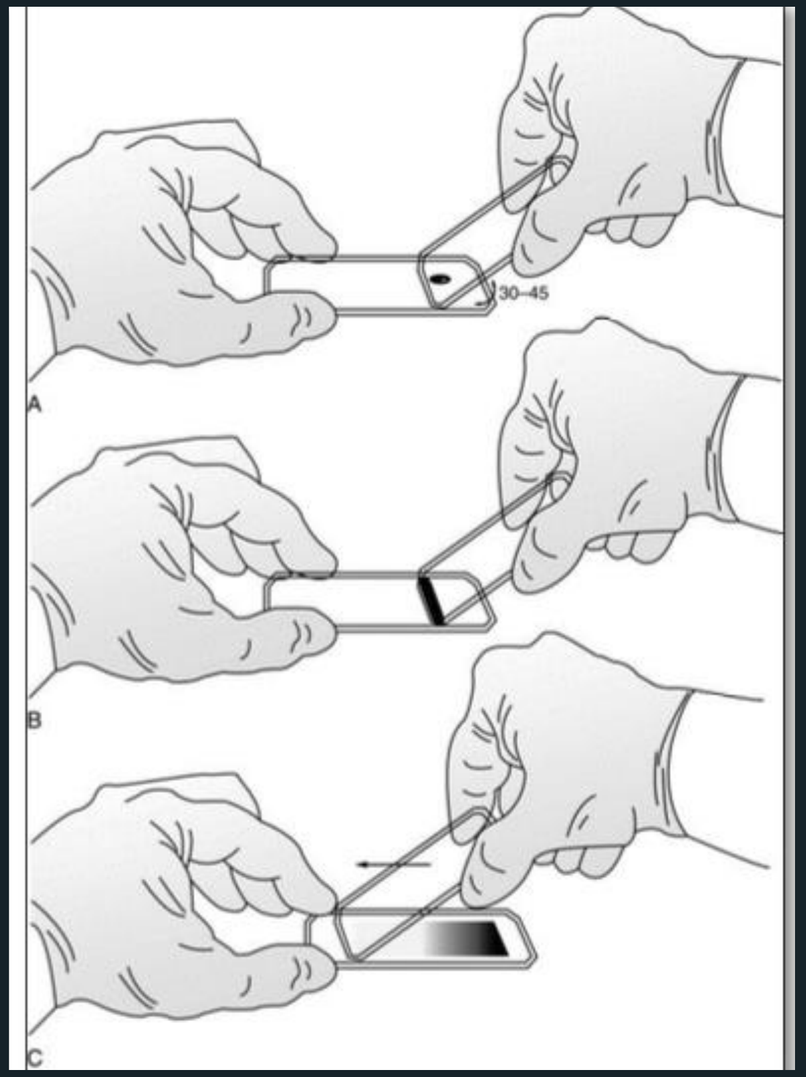
Clean the finger with alcohol, allow it dry & then prick it with a disposable lancet to obtain a drop of blood.

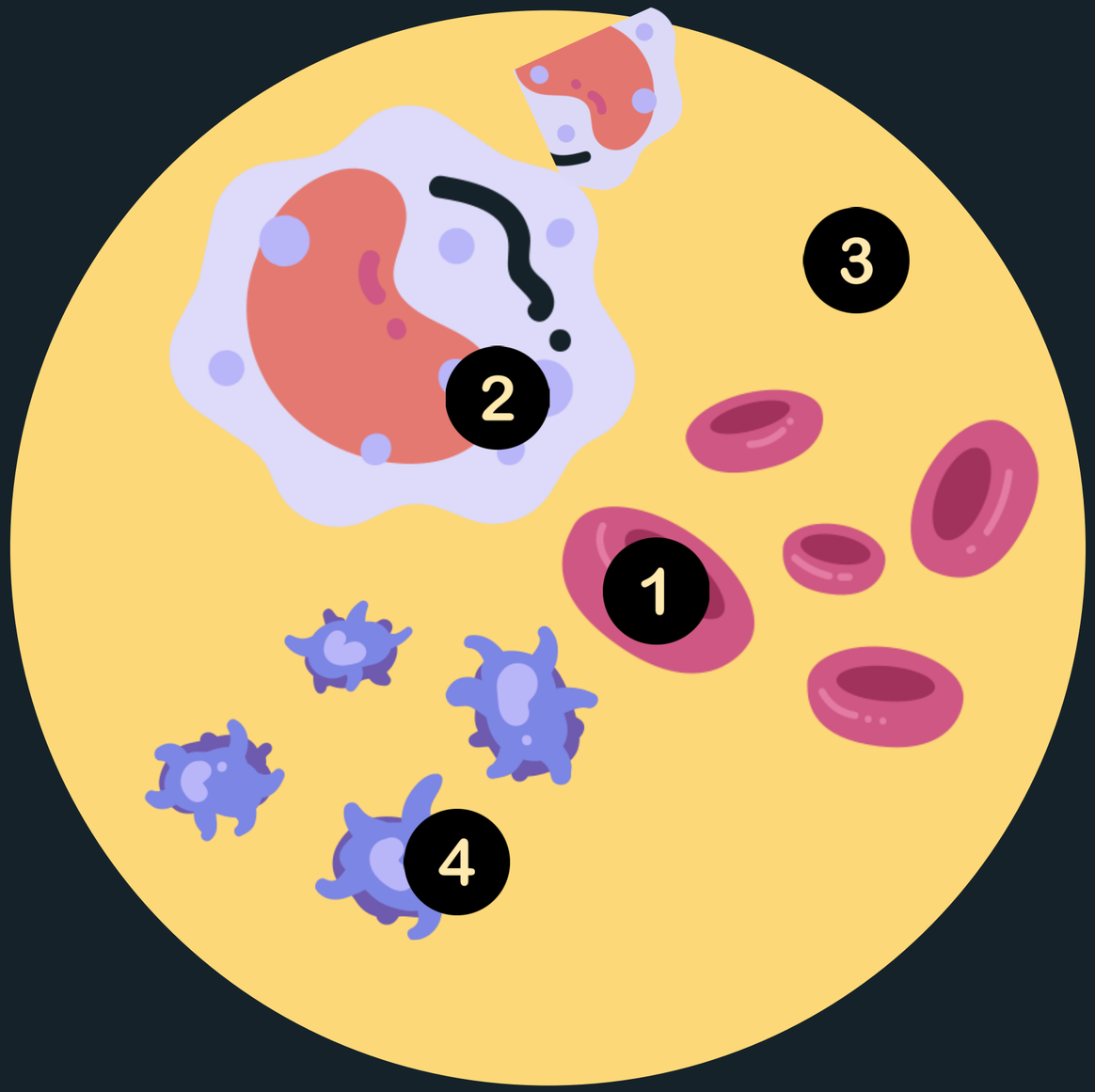
Place a small drop of well mixed whole blood, in the center line of the slide, about 1.5 to 2 cm from one end, with the aid of a capillary tube.

PROCEDURE

without delay, with the aid of a second clean slide with uniform smooth edges (spreader slide), with a 30 –45 degrees angle, move back so blood drop will spread along the edge of the spreader slide spread, or smear the film by a quick, uniform forward motion of the spreader.


Spreader slide
Spreader
Drop of blood


30–45
A
B
C



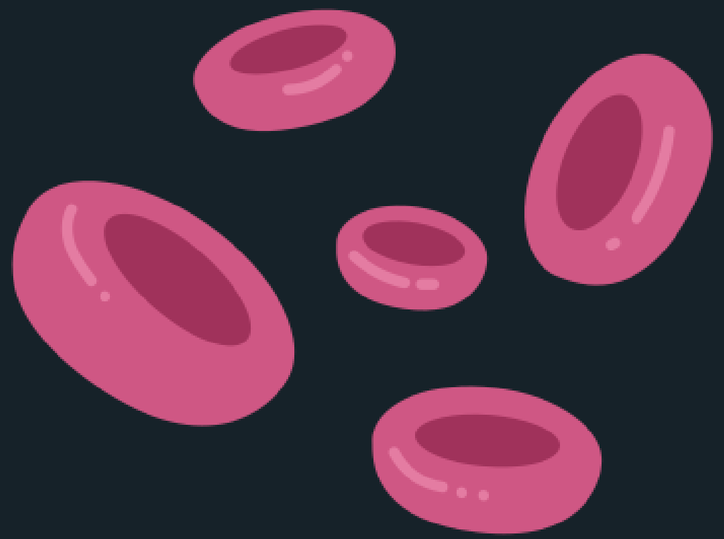
BLOOD COMPONENTS

1. Red blood cells
2. White blood cells
3. Plasma
4. Platelets

RED BLOOD CELLS

ROLE AND FUNCTION

- Red blood cells take oxygen from the lungs to every cell
- They contain a chemical called haemoglobin which binds to oxygen



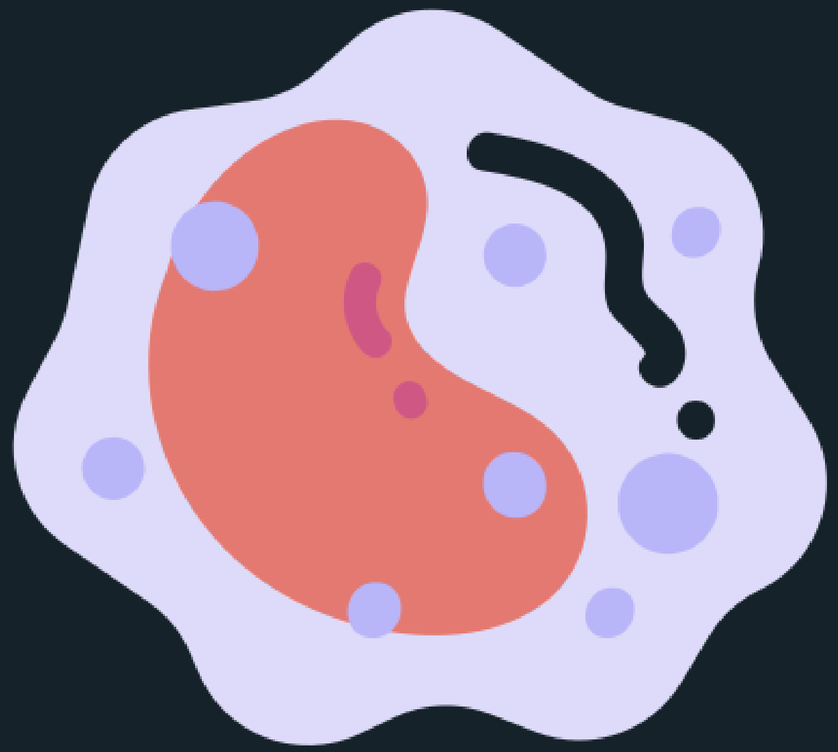
DESCRIPTION

- Biconcave disc shape
- No nucleus

PERCENTAGE

- 44% of the blood is red blood cells

WHITE BLOOD CELLS



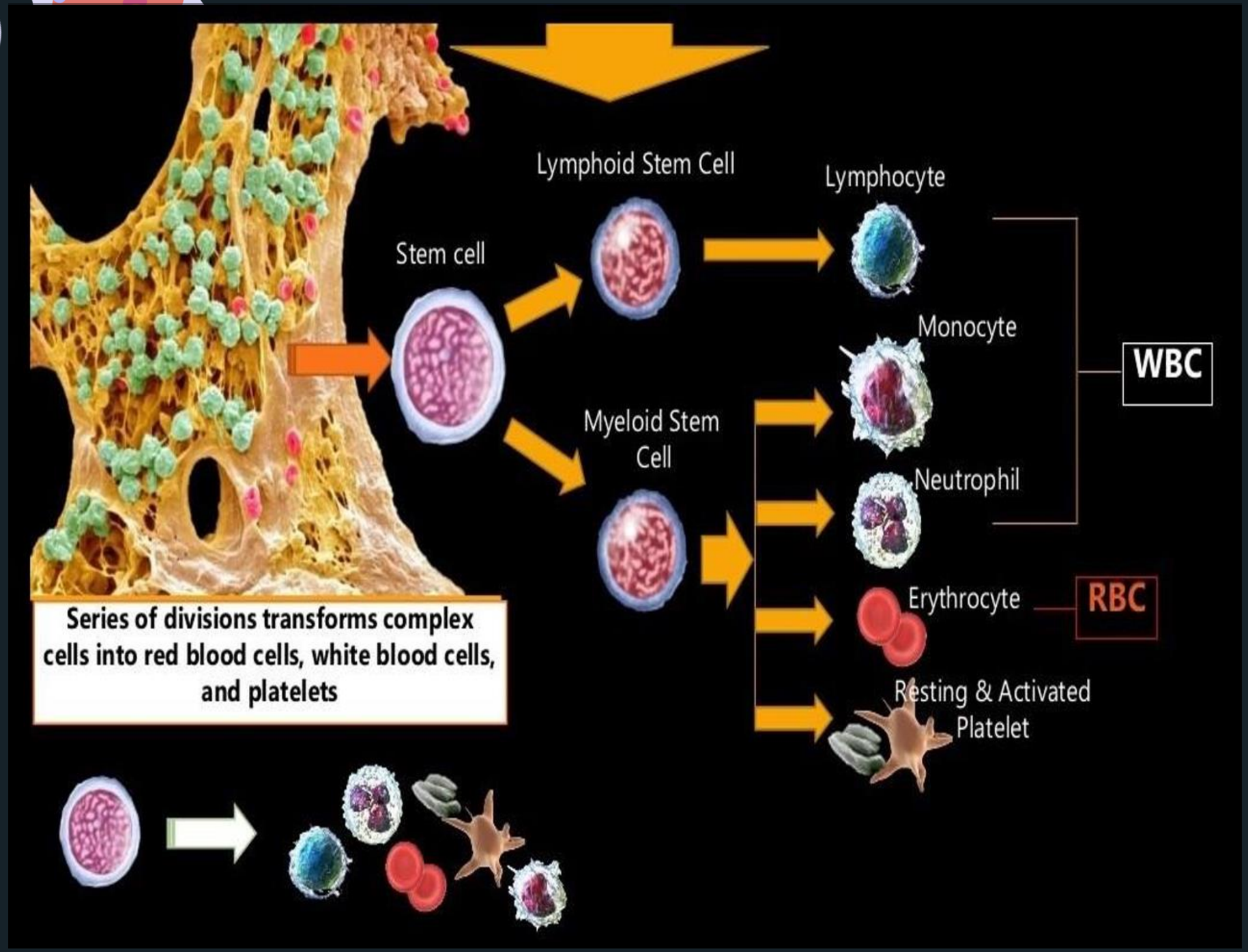
ROLE AND FUNCTION

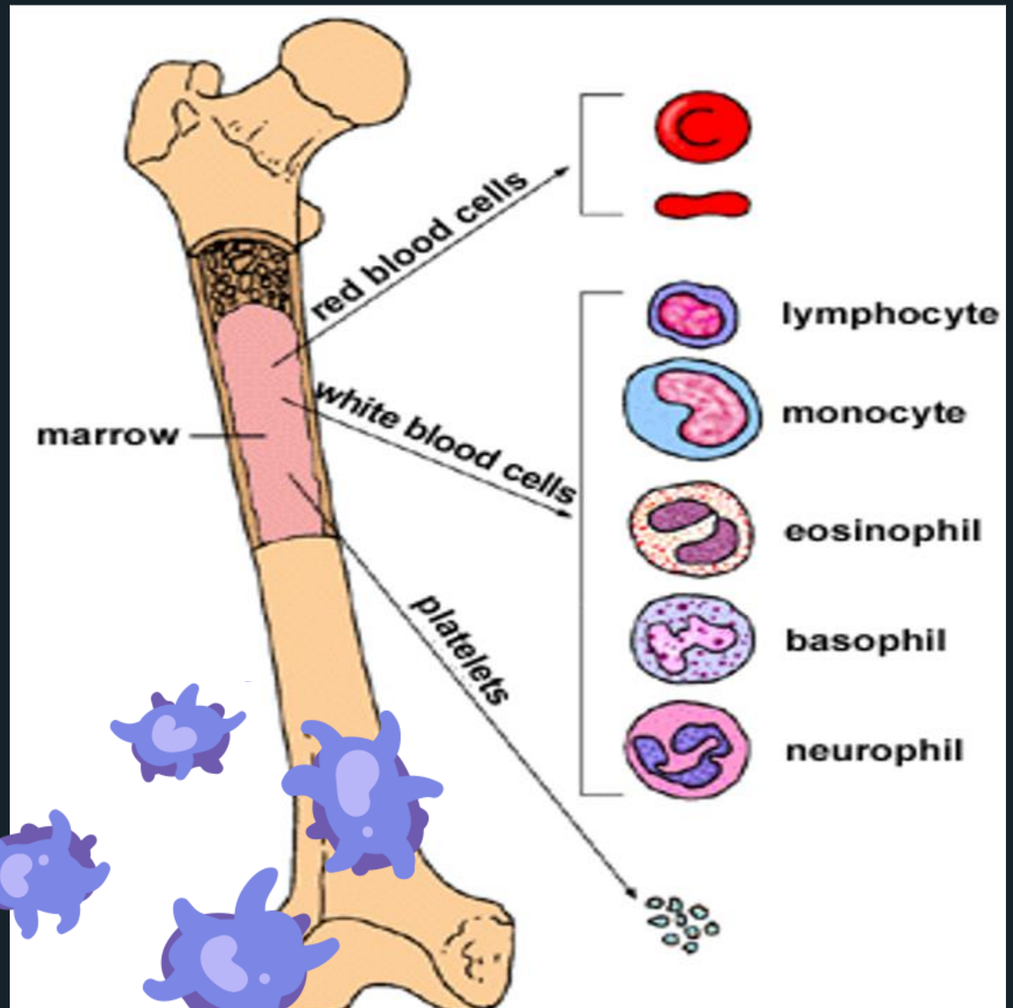
- White blood cells in immune system
- They fight diseases and infections
- They are made in the bone marrow

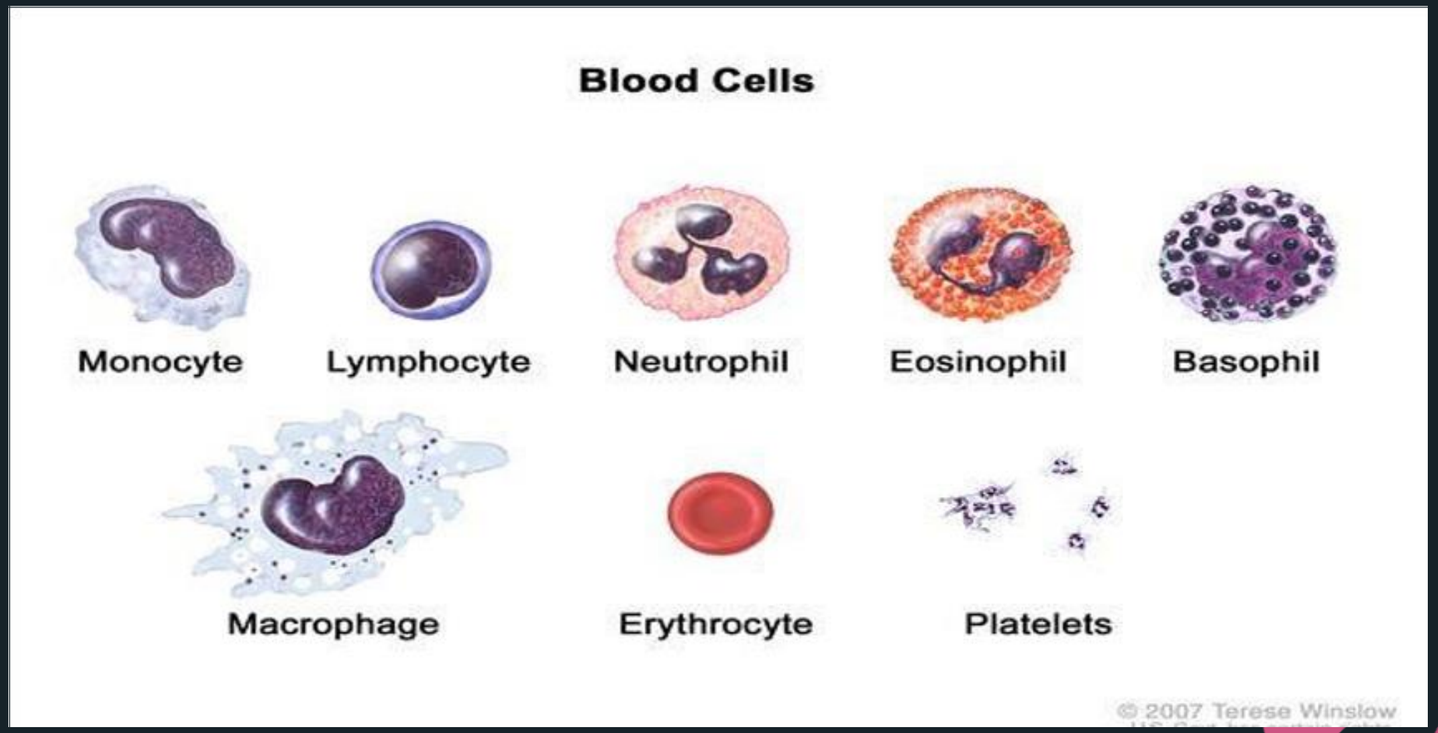
PERCENTAGE

- **neutrophils 60-70 %**
- **Eosinophils 2-4 %**
- **Basophils 0.5-1 %**
- **Lymphocytes 20-25 %**
- **Monocytes 3-8 %**

WBC TYPE	HIGHT COUNT	LOW COUNT
neutrophils	bacterial infection, burns, stress, inflammation	radiation exposure, drug toxicity, vitamin B12 deficiency, systemic lupus erythematosus (SLE)
eosinophils	autoimmune diseases allergic reactions	Drug toxicity, stress
basophils	allergic reactions, leukemias hypothyroidism	Pregnancy, ovulation, stress,hyperthyroidism
lymphocytes	viral infections, leukemias	prolonged illness immunosuppression
monocytes	viral or fungal infection Tuberculosis chronic diseases	bone marrow suppression


Lymphoid Stem Cell
Lymphocyte
Stem cell
Monocyte
WBC
Myeloid Stem Cell
Neutrophil
Erythrocyte
RBC
Resting & Activated Platelet
Series of divisions transforms complex cells into red blood cells, white blood cells, and platelets


red blood cells
white blood cells
marrow
platelets
lymphocyte
monocyte
eosinophil
basophil
neurophil


Blood Cells
Monocyte
Lymphocyte
Neutrophil
Eosinophil
Basophil
Macrophage
Erythrocyte
Platelets
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PLASMA

ROLE AND FUNCTION

- The plasma carries the red blood cells, white blood cells and platelets around the body
- It contains hormones, glucose, enzymes and waste products



DESCRIPTION

- Pale yellow
- Liquid

PERCENTAGE

- 55% of the blood is plasma

STAINING OF BLOOD SMEAR:

1. Romanosky stains
2. Leishman’s stain
3. Giemsa’s stain
4. Wright’s stain

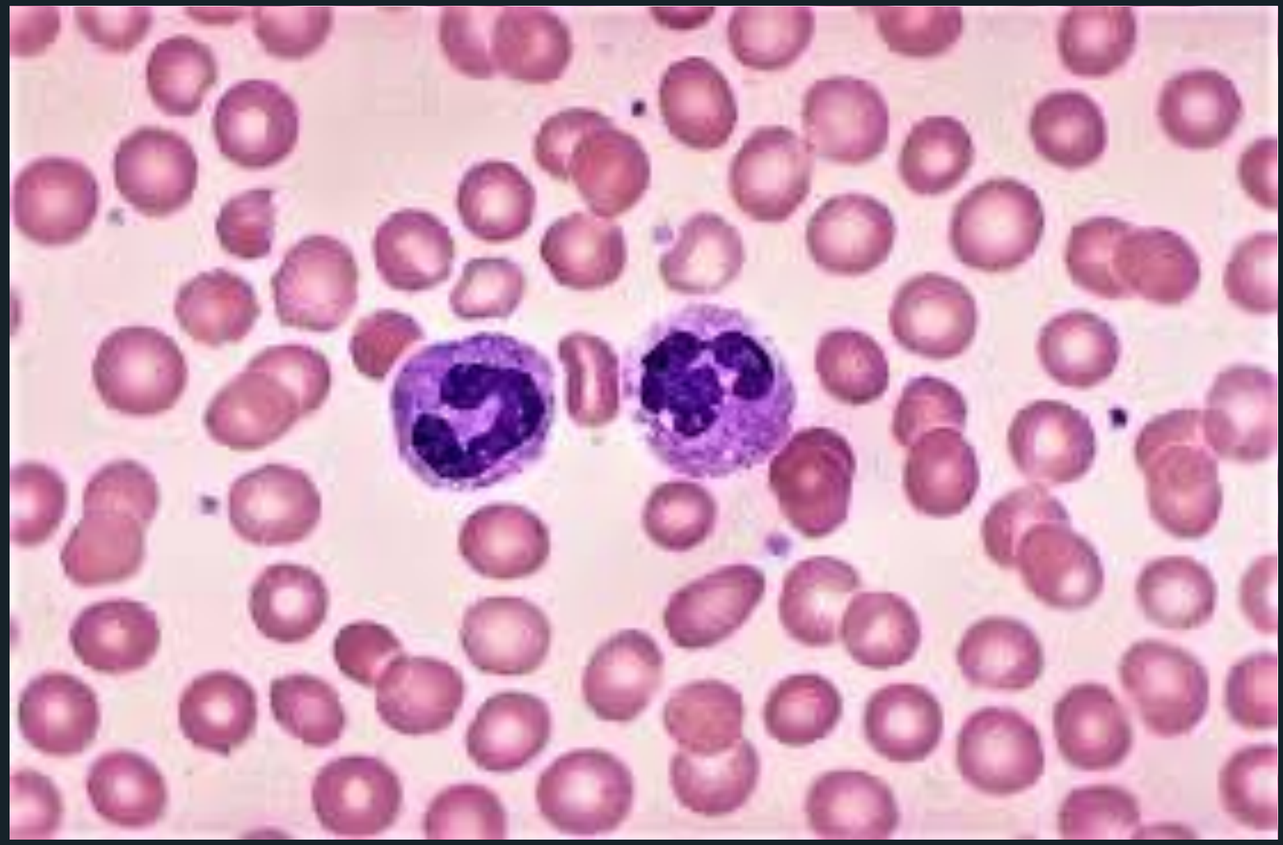
FIXATION OF BLOOD SMEAR

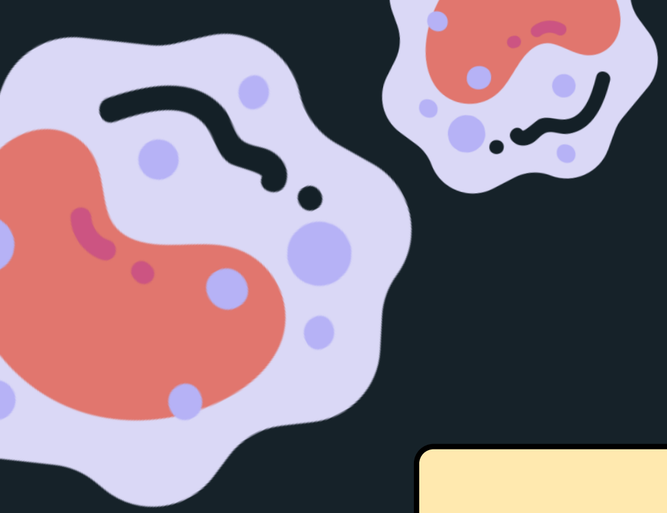
1. Methyl alcohol (Methanol)
2. Ethyl alcohol (Ethanol)
3. Formaldehyde
4. Propanol

LEISHMAN'S STAIN PROCEDURE

1. Let the films be air dried.
2. Put the films on a staining rack.
3. Flood the slides with the stain.
4. After 2 minutes (or more, if the stain in newly prepared), add double volume of water, and blow to mix the stain with water, until a shiny layer is seen.
5. After 5-7 minutes, wash with a stream of water.
6. Wipe the back of the slides with gauze.
7. Set the films in upright position on a filter paper to dry.
8. Read the blood films microscopically.

LEISHMAN'S STAIN PROCEDURE







THE END

THANK YOU

