**The red blood cell count**

*Introduction*:

The red blood cell count is the determination of the number of erythrocytes in one cubic milliliter of blood.

The major function of red blood cells, also known as erythrocytes, is to transport *hemoglobin*, which in turn carries oxygen from the lungs to the tissues.

RBC is formed in bone marrow & the main stimulus for RBC production is hypoxia.

The total mass of red blood cells in the circulatory stem is regulated within narrow limits, so that:

1. an adequate number of red cells is always available to provide sufficient transport of oxygen from the lungs to the tissues.
2. the cells do not become so numerous that they impede blood flow.

*Apparatus & reagents*:

*Apparatus*:

1. Neubauer’s chamber with cover slip.
2. Red cell pipette.
3. Microscope.
4. Diluting fluid.

*Reagents*:

1. Trisodium citrate.
2. Hayem’s solution.
**Procedure:**

1. Draw the blood to the 0.5 mark in the Red cell pipette.
2. Draw the diluting fluid up to the 101 mark.
3. The cover slip is placed over the Neubauer’s chamber.
4. Now load the chamber by diluting blood.
5. Allow 2 min. for setting of the cells & then count.
6. The count is done by:
   \[
   \text{RBC count} = \text{dilution} \times \frac{1}{\text{Volume}} \times \text{number of cells counted(N)}.
   \]
   \[
   = 200 \times 50 \times N \\
   = 10000 \times N \text{ cell/mm}^3
   \]

**Normal range:**

Adult male = 5200000±300000 cell/mm³

Adult female = 4700000±300000 cell/mm³

Increase number of RBC either:

- primary ex. polycythemia rubra vera.
- Secondary ex. smoking.