جامعة المستقبل
كلية التقنيات الصحية والطبية-قسم التخدير

Physiology Practical
Lecture: (7)
Red blood cell count

اعداد

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General Objective of the Lecture:

The student should know the importance of this test and its relationship to anemia and polycythmia

Behavioral Objectives:

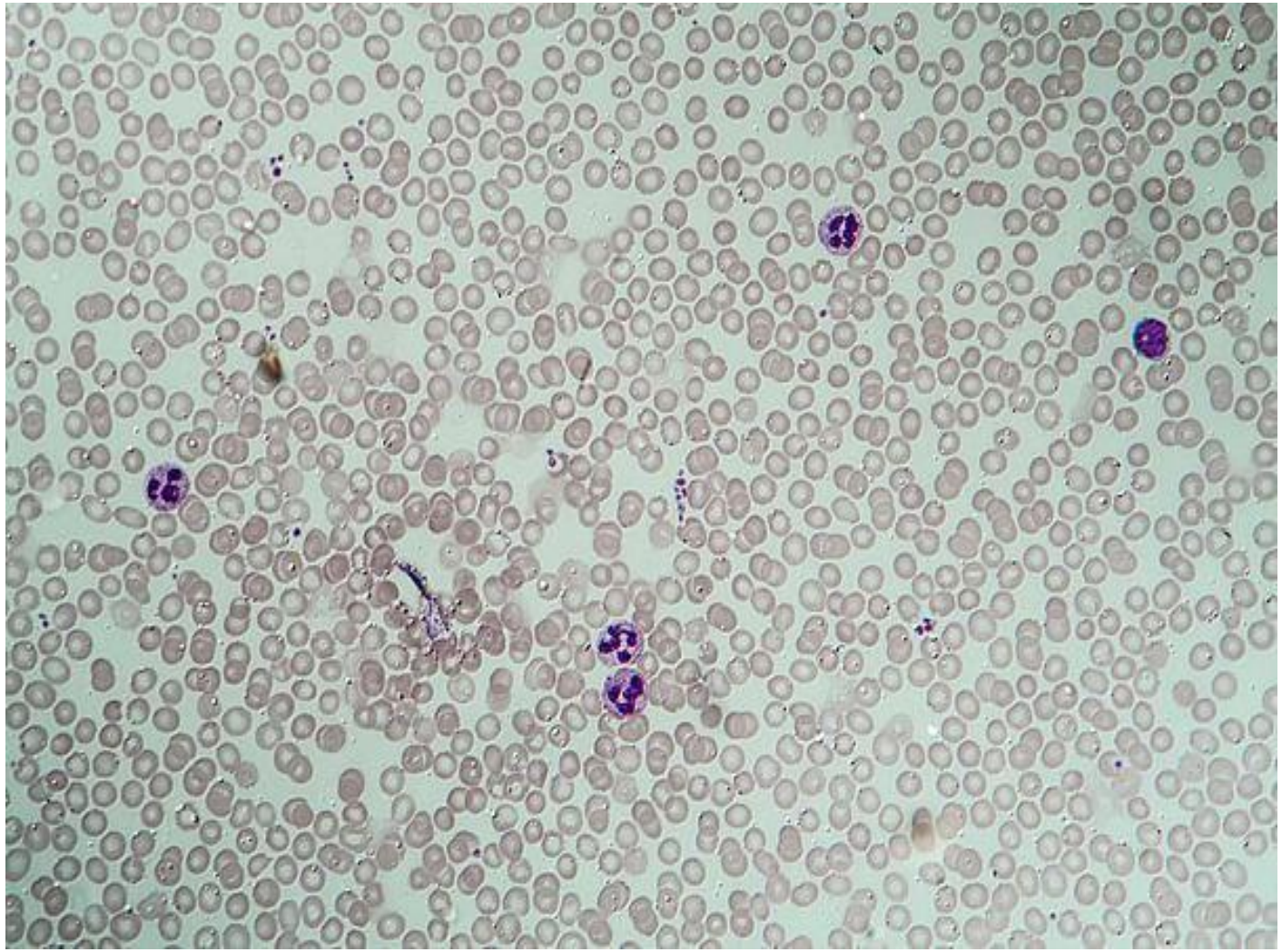
1-Definition of RBC count

2-Normal value of RBC count

3- Factors effect on RBC count

4-Method and procedure

ماالذي تشاهده فى هذه الصورة



Red Blood Cells (RBCs)

RBC Count: Refers to the number of red blood cells present in one cubic millimeter of whole blood.

Red blood cells, or erythrocytes, are responsible for transporting oxygen from the lungs to the various organs of the body. These cells play a vital role in maintaining the body's essential functions by providing the necessary oxygen for metabolic processes and biochemical reactions.

Normal Average

1. In Males: The average count is 5,500,000 cells per cubic millimeter (range: 5-6 million cells per cubic millimeter).

2. In Females: The average count is 4,800,000 cells per cubic millimeter (range: 4-5.5 million cells per cubic millimeter).

Factors That Increase Red Blood Cell Count

Elevated levels of red blood cells (RBCs) can result from several factors:

1. Excessive Smoking:

2. Dehydration:

3. Congenital Heart Disease:

4. Pulmonary Fibrosis:

Individual activity

What are the other factors that can increase the red blood cell count?

Factors That Decrease Red Blood Cell Count

Low levels of red blood cells (RBCs) indicate the presence of anemia, which can be caused by several factors:

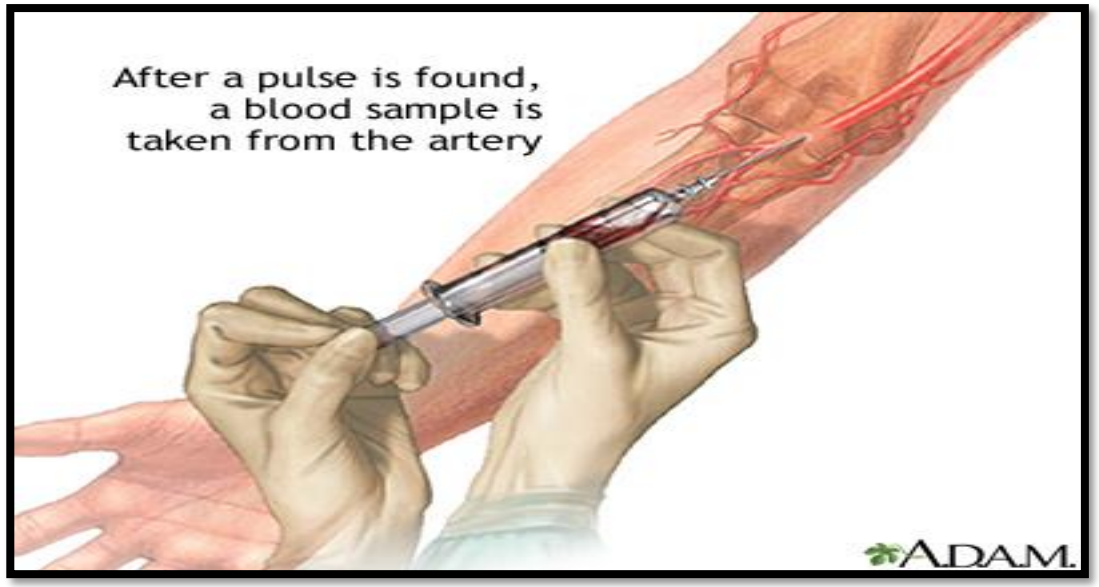
1. **Iron Deficiency:**
2. **Kidney Disease:**
3. **Malnutrition:**
4. **Internal Bleeding:**
5. **Vitamin Deficiencies:**

Principle

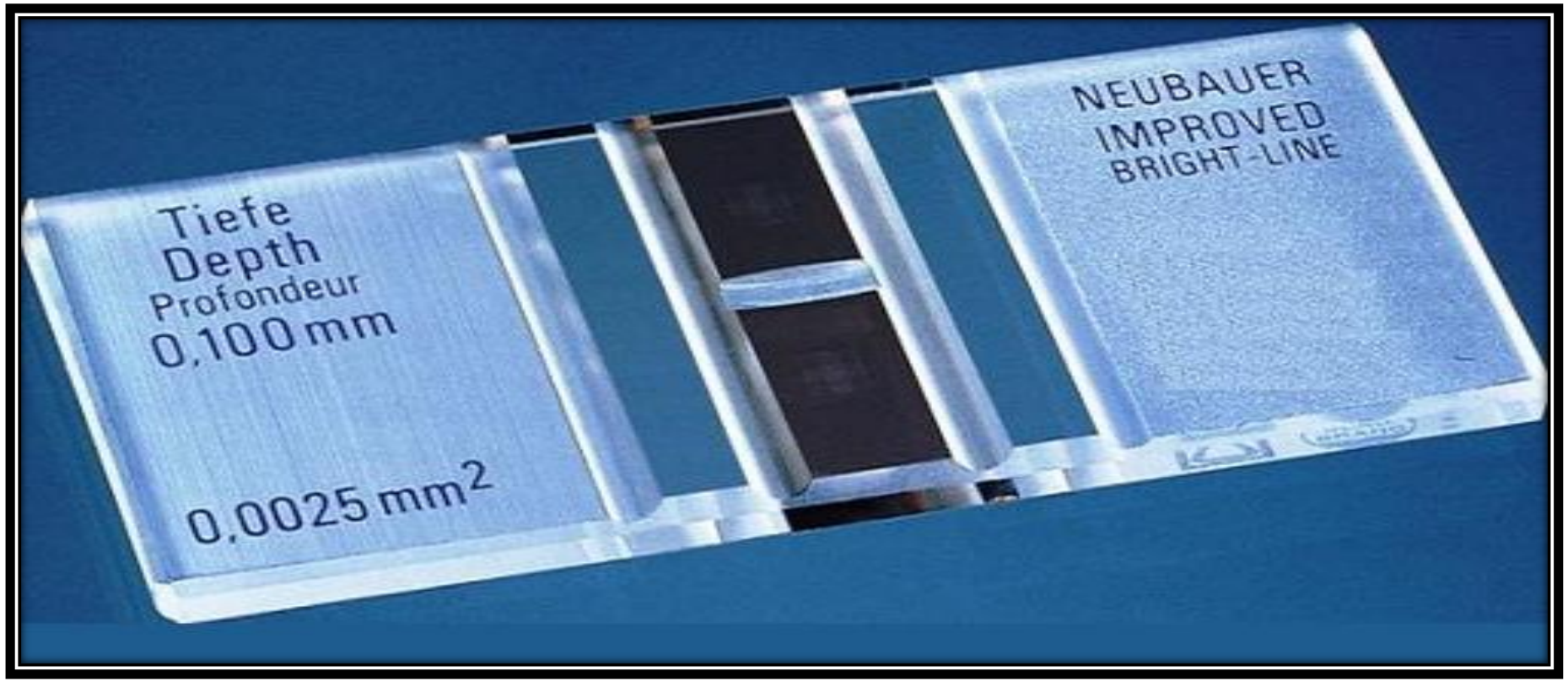
The blood is diluted 20 times with the RBCs diluting fluid .

Materials

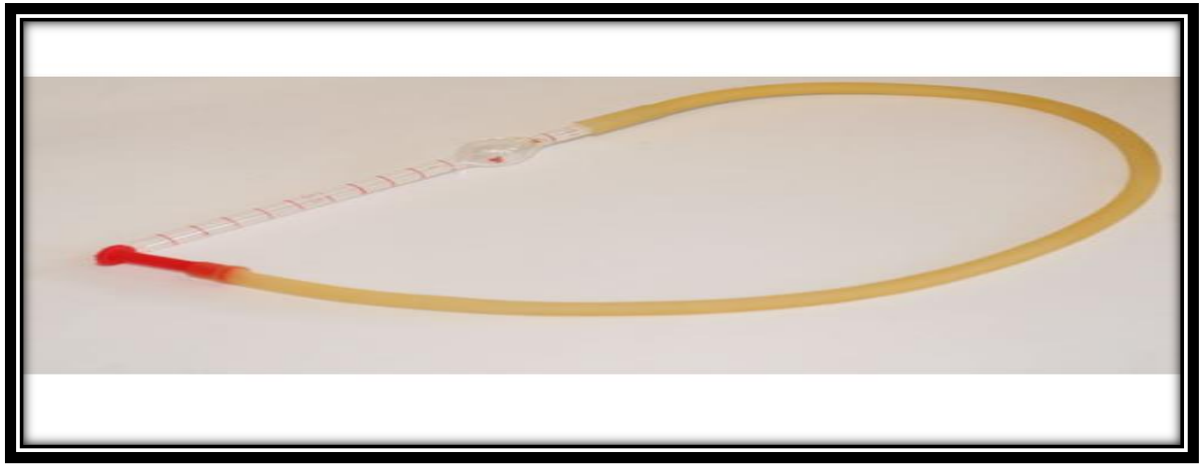
1-Venous blood mixing with EDTA or capillary blood with heparin.



2-Neubauers chamber with cover slip



3-Red cell pipette



4-Microscope

5. Diluting Fluid (Disodium Citrate Solution)

- Disodium Citrate: 3.8 grams
- Formalin: 1 ml
- Distilled Water: 99 ml

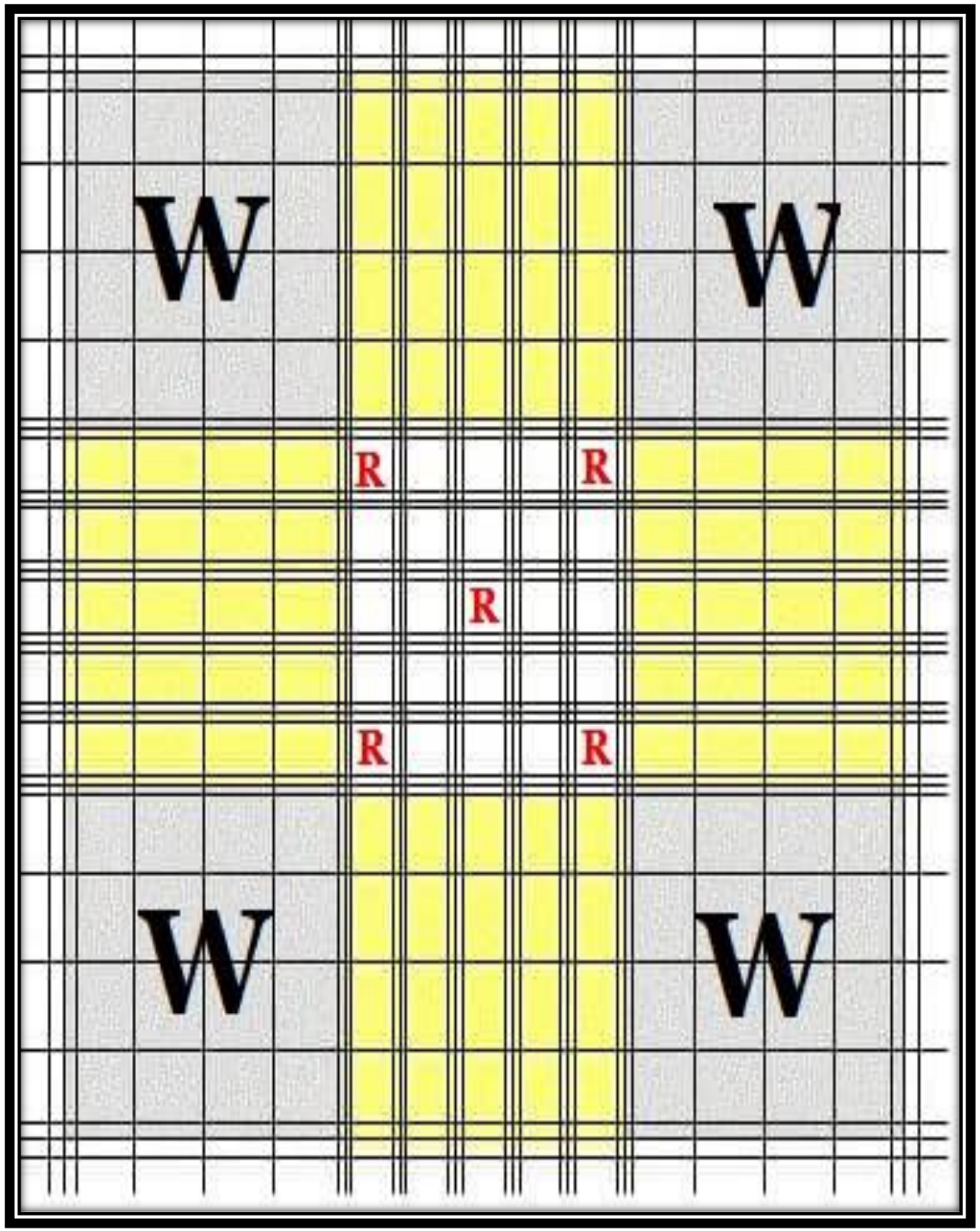
method

1-draw blood by RBCs pipette up to the mark 0.5

2-wipe tip of pipette and draw the diluting fluid up to mark 101

3-mix the content of pipette for 2 minutes

4-count the cells in 5 sequares of the center sequare.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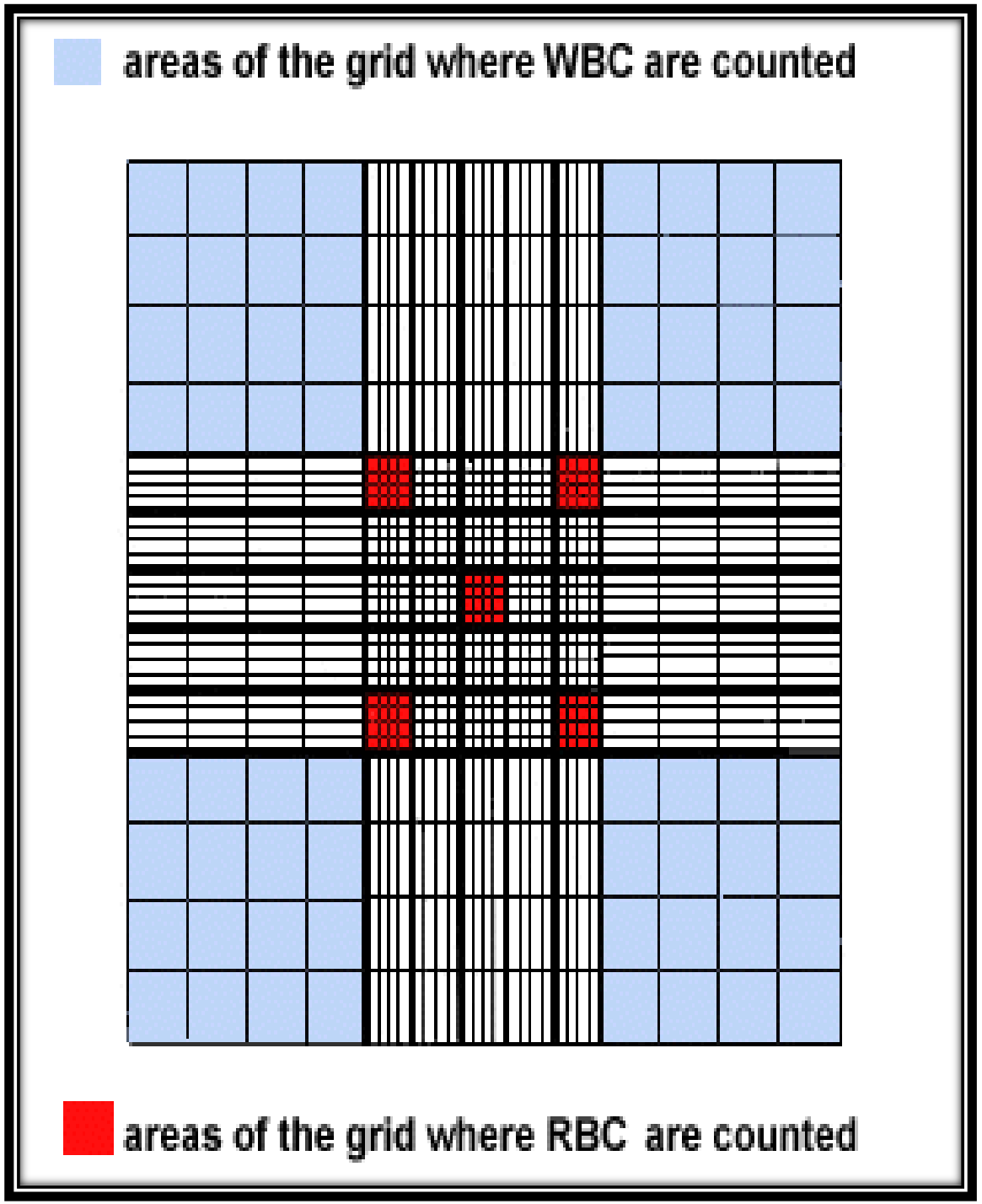
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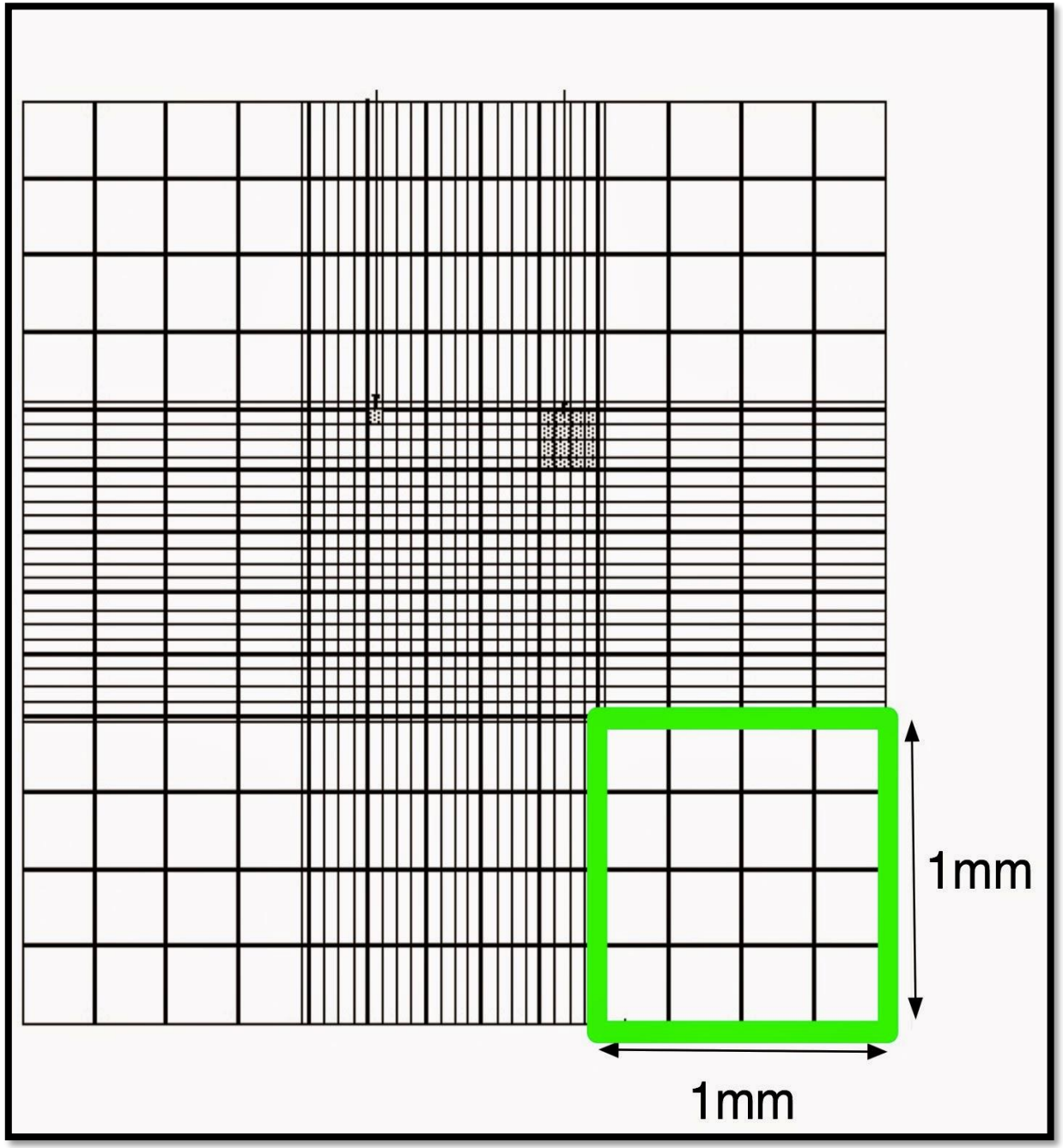
areas of the grid where RBC are counted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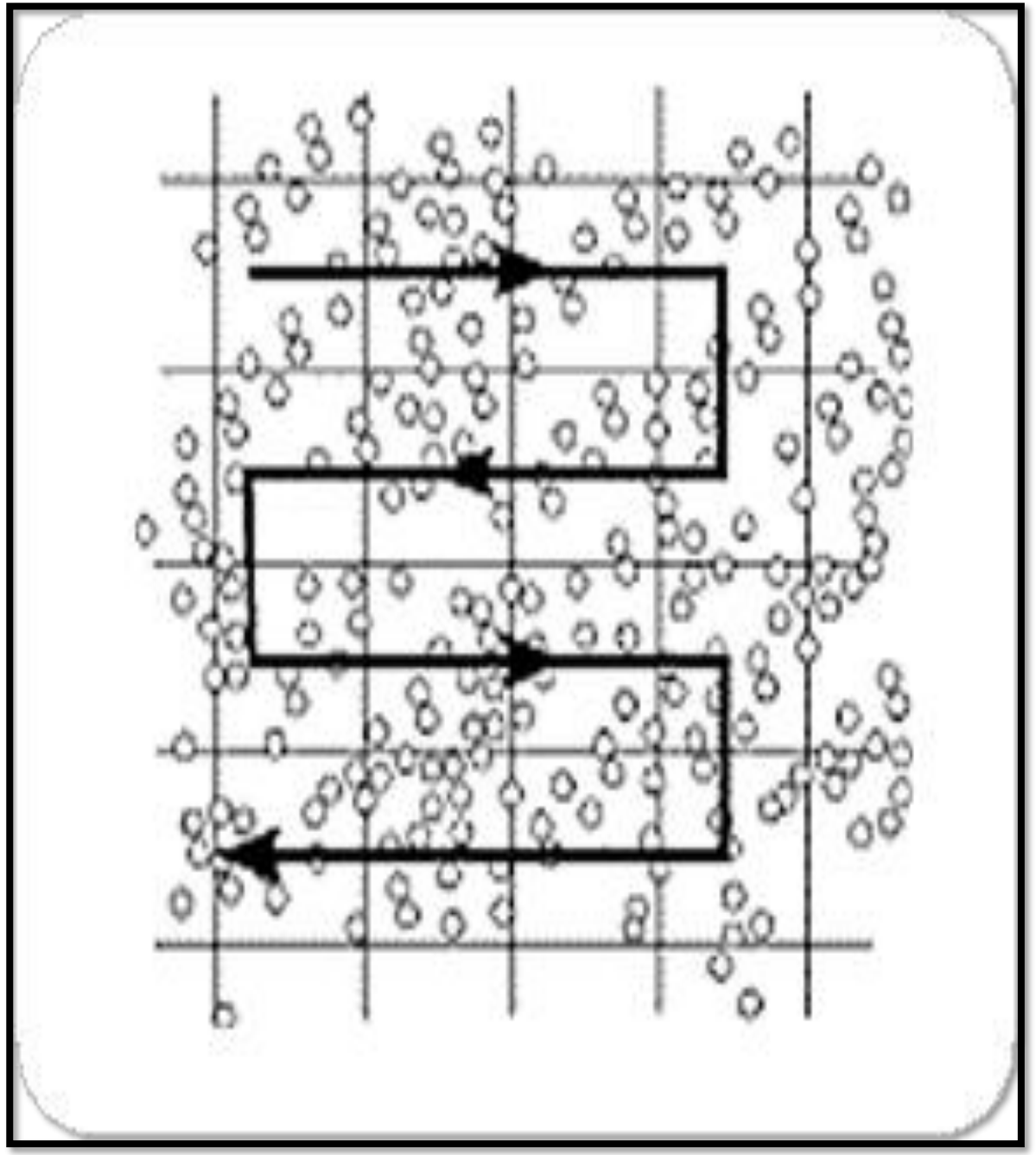

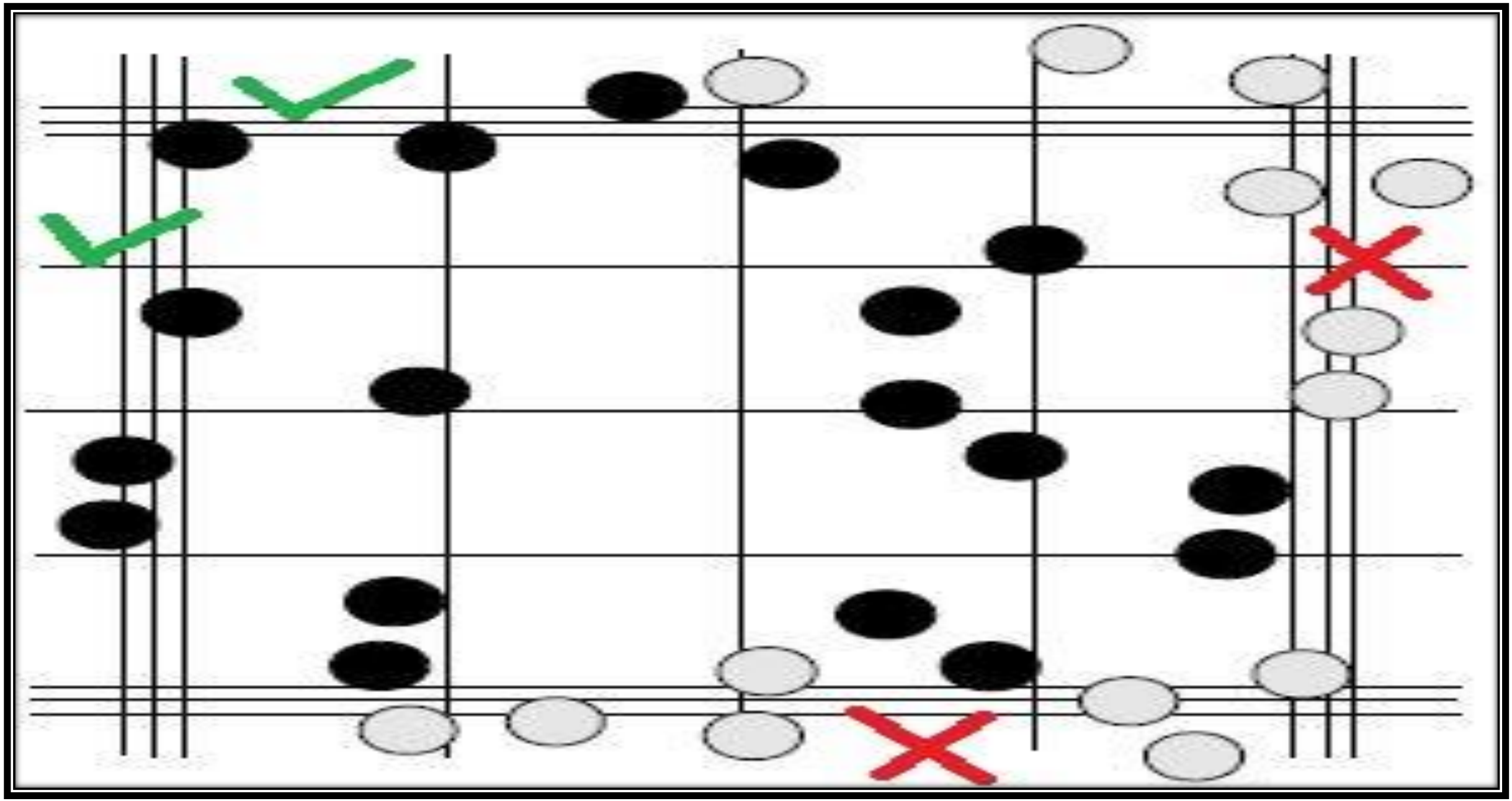

Calculation

R.B.Cs count =N*10.000 cells of blood

Evaluation

1-What is RBC count ?

2-What are the factors that increase RBC count?

Thank You!