



Al-Mustaqbal University

College of Sciences Intelligent

Medical Systems Department

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LECTURE(4) :

Subject :Packed Cell Volume (PCV)

Level: first

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Packed Cell Volume (PCV)

also known as **Hematocrit**, is a laboratory test that measures the percentage of red blood cells (RBCs) in the total blood volume.



Purpose and Measurement:

- PCV determines the proportion of RBCs in the blood. RBCs play a critical role in transporting oxygen and nutrients throughout the body.
- The test is performed by spinning a blood sample in a centrifuge

Normal Ranges:

- For men, the normal PCV range is typically between **38.8% and 50%**.
- For women, the normal range is generally **34.9% to 44.5%**.



Reasons for Testing PCV:

- **Diagnosing Anemia:** Low PCV levels may indicate anemia (a decrease in RBCs).
- **Evaluating Polycythemia:** High PCV levels may suggest polycythemia (an increase in RBCs).
- **Assessing Dehydration:** PCV can be affected by changes in blood volume due to dehydration.

Causes of High PCV:

- Dehydration
- Lung diseases
- Congenital heart defects

Causes of Low PCV:

- Sickle cell anemia
- Iron-deficiency anemia
- Chronic inflammation
- Kidney failure
- Vitamin or mineral deficiencies

Test Procedure:

- 1-Capillary blood obtained from pricking finger tip after cleaning it with alcohol.
- 2- Fill a heparinized capillary tube (fig.1), then seal one end by plasticine.
- 3-Centrifuge for 15 minutes to packed the cells at one end of the tube leaving a clear plasma on top.
- 4- Use the hematocrit reader(fig.2) to find the packed cell volume.



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Figer1: heparinized capillary tube

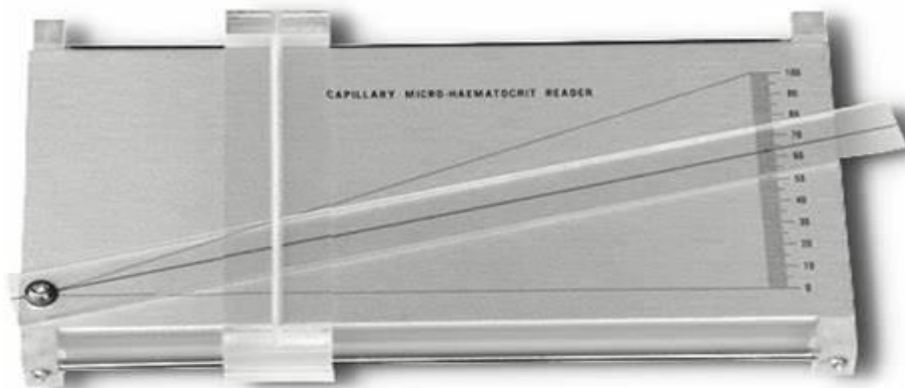


fig.2 hematocrit reader for capillary tubes.