

Al-Mamoun university college

Human Physiology

Medical lab Tech

Second stage

2024/2025

Lab 7

Determination of packed cell volume (P.C.V.)

Is the percentage of the volume occupied by red blood cells in total blood.

Purpose:

Purpose:

This is a benefit test for diagnosis of certain blood disorders for Example. Increased P.C.V values indicate polycythemia, Diabetes Mellitus, etc. while Decreased P.C.V values indicate anemia, Leukemia and hypothyroidism, etc.

P.C.V. test:

1. Material required:

- 1-Blood sample.
- 2-Microhaematocrite centrifuge.
- 3-Microhaematocrite reader.
- 4- Wax or paste.
- 5-Cotton, alcohol.
- 6-Lancet.
- 7-Capillary tube.

2. Procedure:

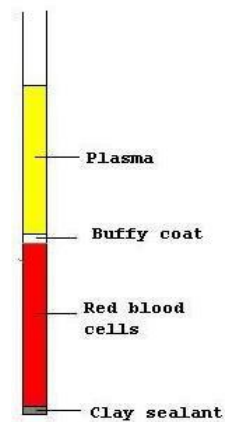
1. Fill a Hematocrit tube ($\frac{3}{4}$ full) with blood containing anticoagulant. If blood is obtained directly from the patient, you must sterilize the finger with cotton dipped in 70% alcohol puncture your finger with a disposable lancet to obtain a drop of blood.

2 . place the capillary tube in microcentrifuge, with plug end to the outside and centrifuge in 5min. at 10,000 R.P.M.

3. After centrifuge three layers will be produced:

- Red Blood Cells are **packed** in the bottom .
- The Buffy Coat (WBC + Platelets) in the middle .
- The yellowish plasma on the top

4. Using the hematocrit reader to read the value.

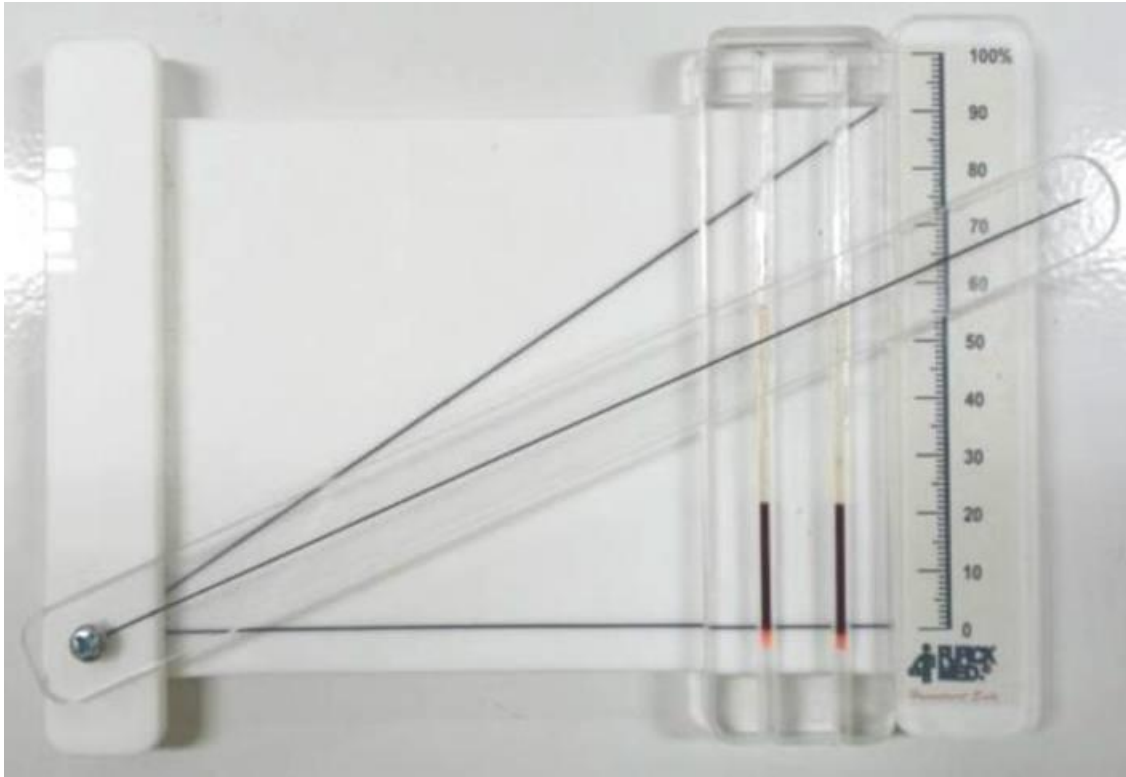




The method of calculating the value of the PCV

own ruler:

The lower end of the capillary tube is placed at the Zero line on the ruler from the left and then moves to the right until the top line of the plasma (the transparent part of the fluid in the tube) intersects with any line on the ruler. Read the value along the line between the red and transparent lines in the tube. This reading is the value of p.c.v.



The normal value is as follows:

Man **40 – 54 %**

Woman **37 – 47 %**

Children **30 – 38 %**

Infant **42 – 52 %**