The hematocrit (**Ht** or **Hct**) or packed cell volume (**PCV**) is the percentage (%) of the concentration of Red Blood Cells (RBC) in blood. It is normally about **42–52**% for men and **36–48**% for women.

Children:

Newborn : 51–61%

1 year : 32–38%

6 years : 34–42%

In the laboratory this is most readily accomplished by centrifugation.

In a centrifuge blood separated into three distinct part including:

(1) the mass of the **erythrocytes** at the bottom which is referred to as packed cell volume (**PCV**).

(2) a **white or gray layer** of leukocytes and thrombocytes immediately above the red cell mass that is referred to as the **buffy coat**.

(3) **blood plasma** in top.

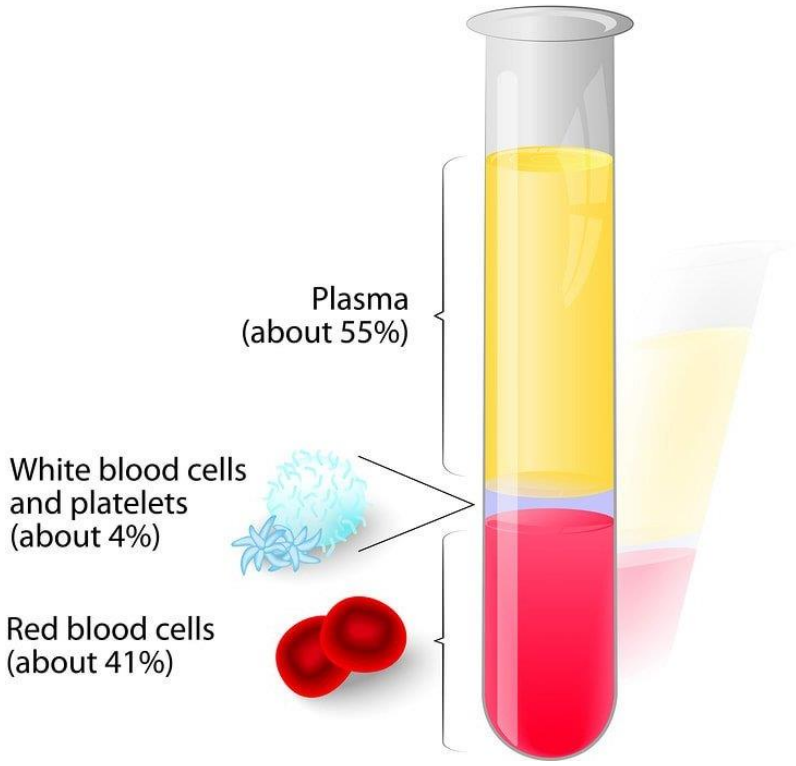
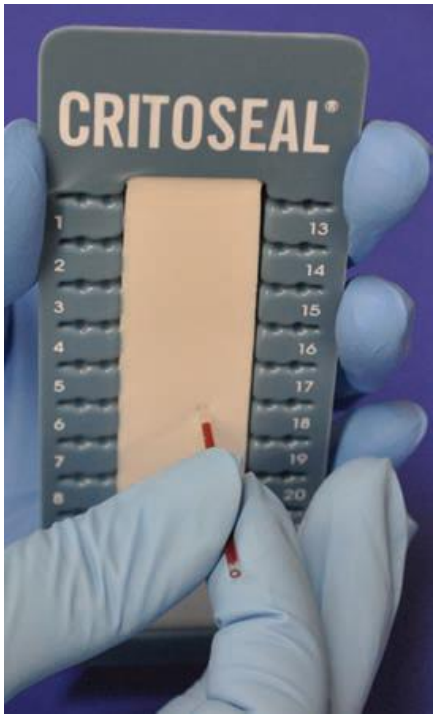
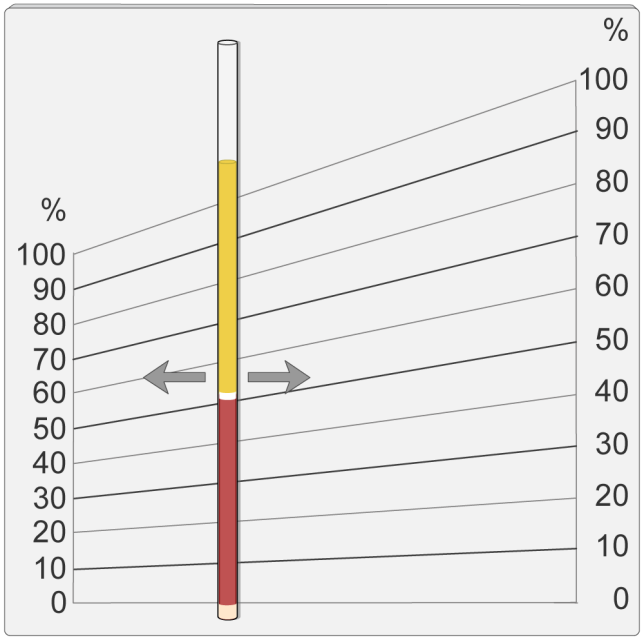


Figure 1: centrifuged Blood components

Procedure

1- In this method using capillary tubes coated with anticoagulant (heparinized capillary tube).
2- The marked end of a plain capillary tube is placed in the blood permitted to fill rapidly to approximately three-quarters of its length.
3- The marked end is then plugged with modeling clay or wax and placed in the centrifuge.
4- Centrifuge for 5 minutes at a set speed (force is approximately 3000 rpm). This separates red cells from plasma and leaves a band of buffy coat.
5- Allow the centrifuge to stop on its own, do not hand brake.
6- The hematocrit is read as the percent of whole venous blood occupied by red cells. This can be done by using microhematocrit reader.
7- You can calculate the PCV as the follows
PCV = Red cells column/ whole blood volume* 100





Elevated PCV :

- Fall in blood plasma levels
- Dehydration
- At higher altitudes, there is a lower oxygen supply in the air and thus hematocrit levels may increase over time.

Lowered PCV :

- A low hematocrit level is a sign of a low red blood cell count.
- Pregnancy may lead to women having additional fluid in blood. This could potentially lead to a small drop in hematocrit level.