

Packed cell volume or Hematocrit (PCV)

Definition:- -The packed cell volume (PCV) can be used as a simple screening test for anemia as a reference method for calibrating automated blood count systems and as a rough practical hematology. -A guide to the accuracy of hemoglobin measurements. The PCV _1000is about three times the Hb expressed in g/l .In conjunction with estimations of HB and RBCs it can be used in the calculation of red cells indices. However used in under resourced laboratories may be limited by the need for a specialized centrifuge and a reliable supply of capillary tubes.

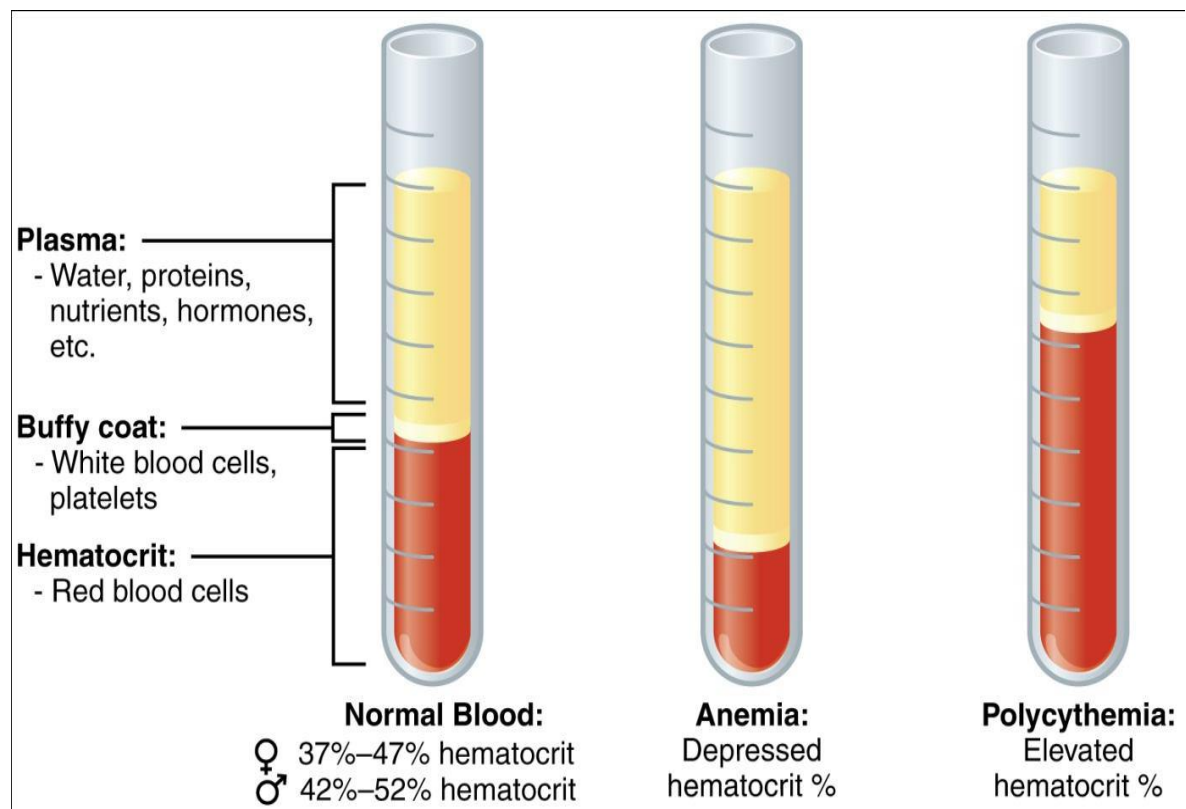
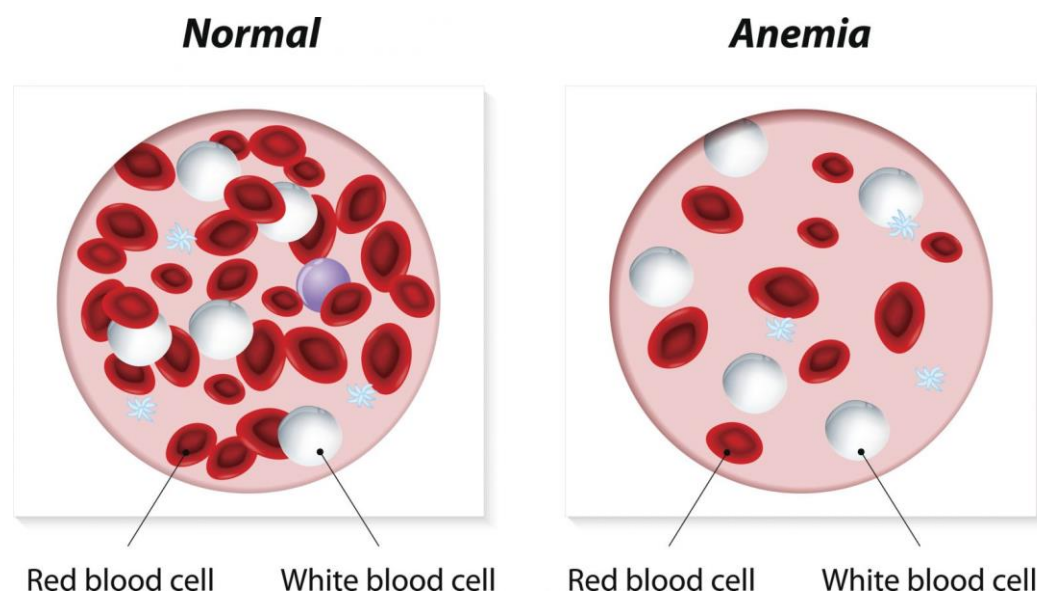


Figure (1) Comparison of PCV in normal blood and anemic , polycythemic blood

Anemia

According to World Health Organization criteria, anemia is defined as blood hemoglobin (Hb) concentration (<13 g/dL) in adult males; Hb (<12 g/dL) in adult females. Signs and symptoms of anemia are varied, depending on the level of anemia and the time course over which it developed. Acute anemia is nearly always due to blood loss or hemolysis. In acute blood loss, hypotension and decreased organ perfusion are the main issues. Symptoms associated with more chronic vary with the age of the person and the adequacy of blood supply to critical organs. Moderate anemia is associated with fatigue, loss of stamina, breathlessness, and tachycardia. The skin and mucous may appear pale.



Symptoms of anemia

Anemia signs and symptoms vary depending on the cause. If the anemia is caused by a chronic disease, the disease can mask them, so that the anemia might be detected by tests for another condition.

Depending on the causes of your anemia, you might have no symptoms. Signs and symptoms, if they do occur, might include:

- Fatigue
- Weakness
- Pale or yellowish skin
- Irregular heartbeats
- Shortness of breath
- Dizziness or lightheadedness
- Chest pain
- Cold hands and feet
- Headaches

Causes of anemia

Anemia occurs when your blood doesn't have enough red blood cells.

This can happen if:

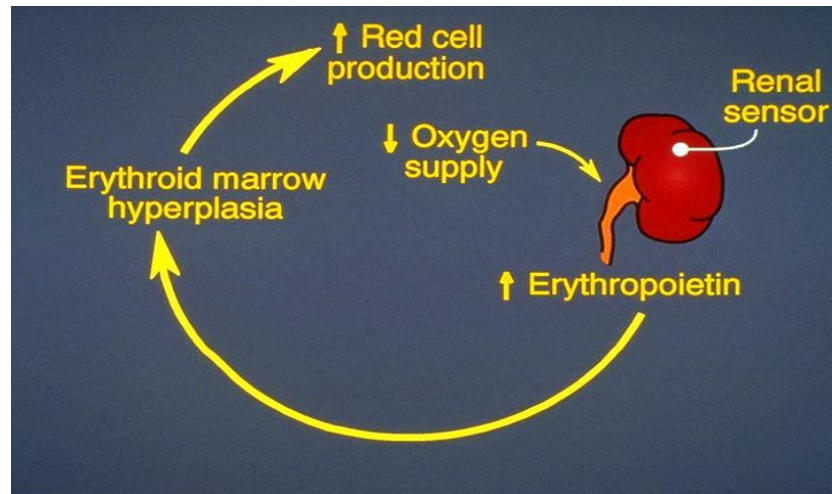
- Your body doesn't make enough red blood cells
- Bleeding causes you to lose red blood cells more quickly than they can be replaced
- Your body destroys red blood cells

Polycythemia

Polycythemia, or erythrocytosis, refers to an increase in the absolute red blood cell (RBC) mass in the body. In practice, this is reflected by an increase in hemoglobin levels, or hematocrit, over what is considered physiologic for that age and gender. The standard RBC

mass does not usually exceed 36 ml/kg in males and 32 ml/kg in females.

The reference ranges for normal hemoglobin levels



Symptoms of polycythaemia

Not everyone with polycythaemia has symptoms – but many do.

Make an appointment to see your GP if you have persistent symptoms of polycythaemia. These include:

- headaches
- blurred vision
- red skin – particularly in the face, hands and feet
- tiredness
- high blood pressure
- dizziness
- discomfort in the tummy
- confusion
- bleeding problems – such as nosebleeds and bruising
- gout – which can cause joint pain, stiffness and swelling
- itchy skin – especially after a bath or shower

What causes polycythaemia?

Polycythaemia can be divided into several different types, depending on the underlying cause. In some cases, an underlying cause can't be identified.