

جامعة الانبار

كلية : الصيدلة

قسم : فرع الادوية والسموم

اسم المادة باللغة العربية: فسلجة عملي

اسم المدة باللغة الإنكليزية: **physiology lab.**

المرحلة: الثانية

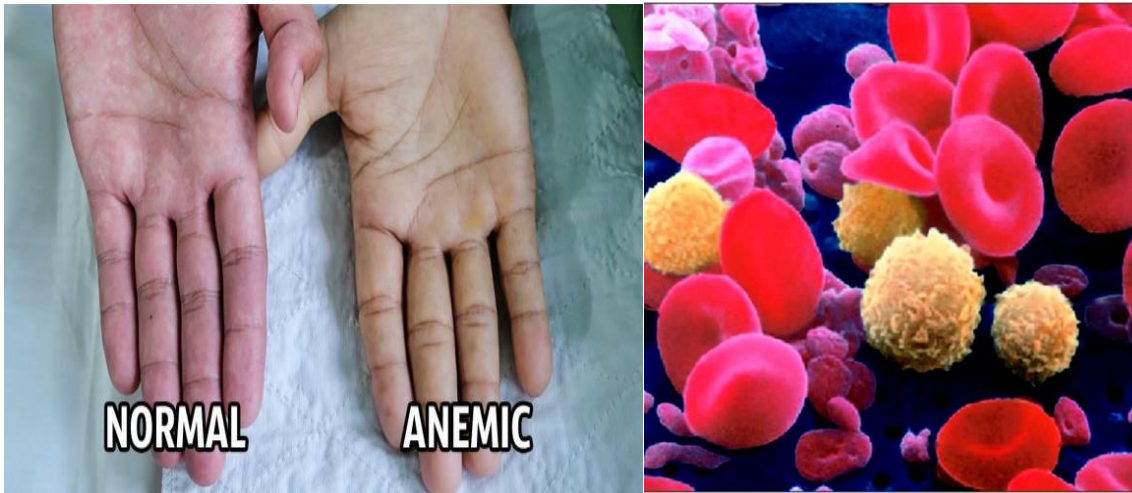
التدريسي: مروة و شكيب ذنون

عنوان المحاضرة باللغة العربية: قياس حجم الدم المضغوط وفقر الدم

عنوان المحاضرة باللغة الإنكليزية:

محتوى المحاضرة

Which Cellular Elements Deficiency Is Responsible Of Anemia

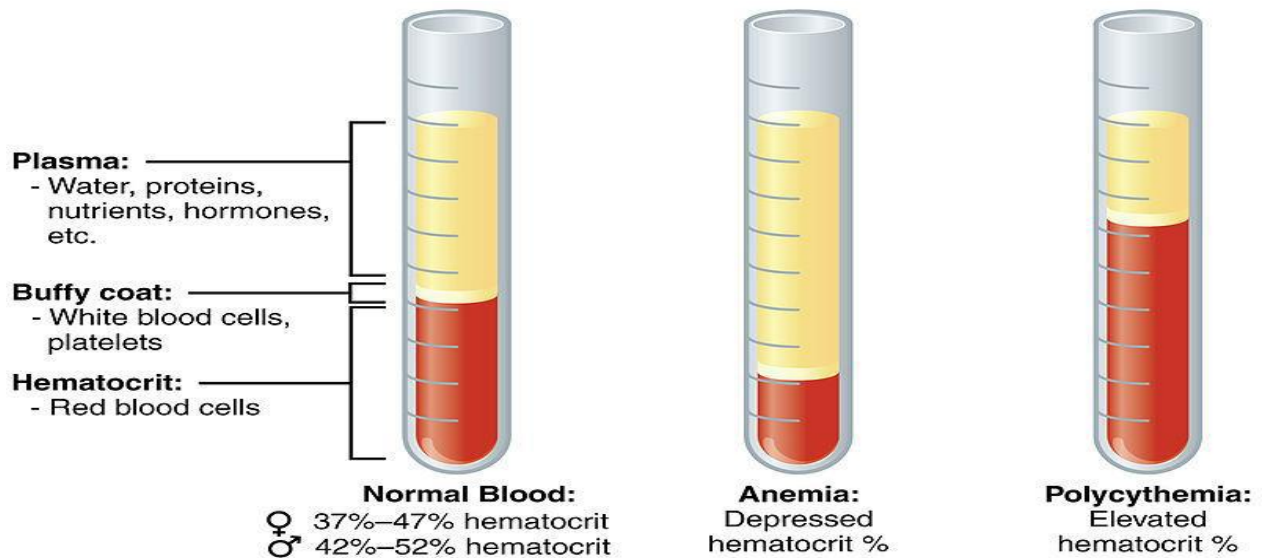


Anaemia

Anaemia is the term given to the :

1. ↓ number of erythrocytes or
2. ↓ concentration of hemoglobin and/or
3. ↓ Hematocrit (PCV) as long as the total blood volume is normal.

• It can be a result of decreased erythrocytes production or rapid erythrocytes loss.



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Packed cell volum(PCV)

PCV is the percentage (%) of the cellular elements ; RBC, WBC & platelets in the whole blood .

Since the volume of WBC, Platelets are very less ,

So the PCV value is considered equivalent to the volume of packed red cells (RBC) , also called Hematocrit.

Normal value ; Male ; 42-53 %

Female 37- 47%

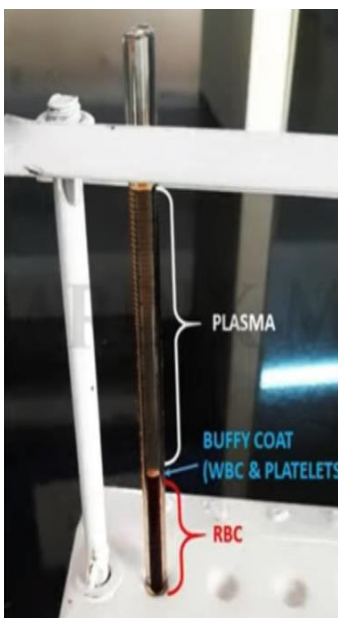
2 Procedure according to sample collection method

1. Macro method—Wintrobe’s method.

- EDTA anticoagulated whole venous blood –test tube

2. Micro method—using capillary tube (Most accurate method).

- Directly from a finger prick, to a heparin coated capillary tube



Macro method –Wintrobe s method



WINTROBE'S TUBE (FOR PCV)

Micro method – using capillary tube

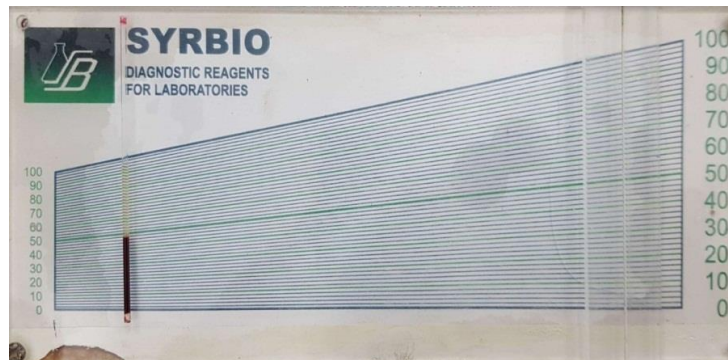
Fill the **capillary tube** with blood by capillary attraction. Either from free flowing finger **punctured by a sterile lancet**/ or from a well mixed anticoagulated whole venous blood .

Seal with the **modeling clay** the empty end of the capillary tube.



Place and position the capillary tube in the **radial grooves** of the **microhematocrit centrifuge** with the sealed end away from the center (pointed toward the outside).

- **Centrifuge for 5 minutes at 12000 r**,
- additional centrifugation does not pack the red blood cells more
- Express the results in percentage (%). on **Hematocrit reader**



Hematocrit reader

The hematocrit value is determined by comparing the volume of RBC's to the total volume of the whole blood sample, it is usually reported as a %.

Hcrt or PCV can be used to calculate Hb concentration by ;

$$\text{Hb} = \text{PCV} \times \frac{3}{3}$$

$$\text{Hb} = \text{PCV} \times \frac{2}{3}$$

Or

$$\text{Hb} = \text{PCV} \times 0.32 \text{ (more accurate)}$$

- Adult males = 40% - 52%.

Adult females = 37% - 47%

- Newborns= 51 - 60%

Children = 34 - 49%

