



الكلية: كلية الطب

القسم او الفرع: فرع الفسلجة

المرحلة: الثانية

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اسم المادة باللغة العربية: فسلجة عملي

اسم المادة باللغة الإنكليزية: practical physiology

اسم المحاضرة الأولى باللغة العربية: مقدمة في علم الدم

اسم المحاضرة الأولى باللغة الإنكليزية: Introduction in Hematology

Hematology is the science that study blood – forming tissues and circulating blood components.

The main functions of the blood are :

Transport oxygen, nutrients, hormones to the tissues and take the wastes of cellular metabolism. The circulating blood accounts is 7-8 % of the total body weight and is composed of two major elements:

1 – Cellular part : included RBCs, WBCs and platelets

2 – Fluid part : plasma is the fluid portion of the blood in which the cellular elements are suspended and circulating throughout the body.

● **Anticoagulants**

- Anticoagulants are chemical or natural substances which prevent blood coagulation, such as :

1 – EDTA (ethylenediamine tetra – acetic acid)

The sodium and potassium salts of EDTA are powerful anticoagulants and they are especially suitable for routine hematological work such as Hb, ESR, PCV. EDTA acts by its chelating effect on the calcium in blood.



2. Trisodium citrate

It acts by chelating Ca, used for ESR estimation. Nine volumes of blood are added to one volume of sodium citrate solution.



3. Oxalate

Such as potassium and ammonium oxalate.

oxalate has a mechanism of action similar to that of citrate



4. Heparin

Heparin is natural anticoagulant. Powder or liquid heparin acts by inhibiting thrombin and other stages of clotting factors activation.

5. Special anticoagulants

such as ACD (acid citrate dextrose) and CPD (citrate phosphate dextrose), this type of anticoagulant is used in blood bank.



There are two types of blood film :

- **1 – Thin blood film**

blood smear is made by "draw" technique; place a drop of blood on one end of a glass slide, place the end of the second slide (spreader slide) against the surface of the first slide at an angle of 30 – 45 degree, draw the spreader gently into the drop of blood and when the blood had along $\frac{2}{3}$ of the width of the spreader, then push the spreader slide forward with a steady manner and dry the slide by air. It used for detecting blood cells.



- **2 – Thick blood film**

This type of blood film is prepared by placing a small drop of blood in the center of a slide and spreading it out with a corner of another slide to cover an area about four times its original area. It used for detecting blood parasite such as malaria.

