

# **Bleeding Time and Clotting Time**

## **Hemostasis:**

- DEFINITION
- Heme = blood
- stasis = to stop
- It is the process of forming clots in the wall of damaged blood vessels & preventing blood loss while maintaining blood in a fluid state within the vascular system

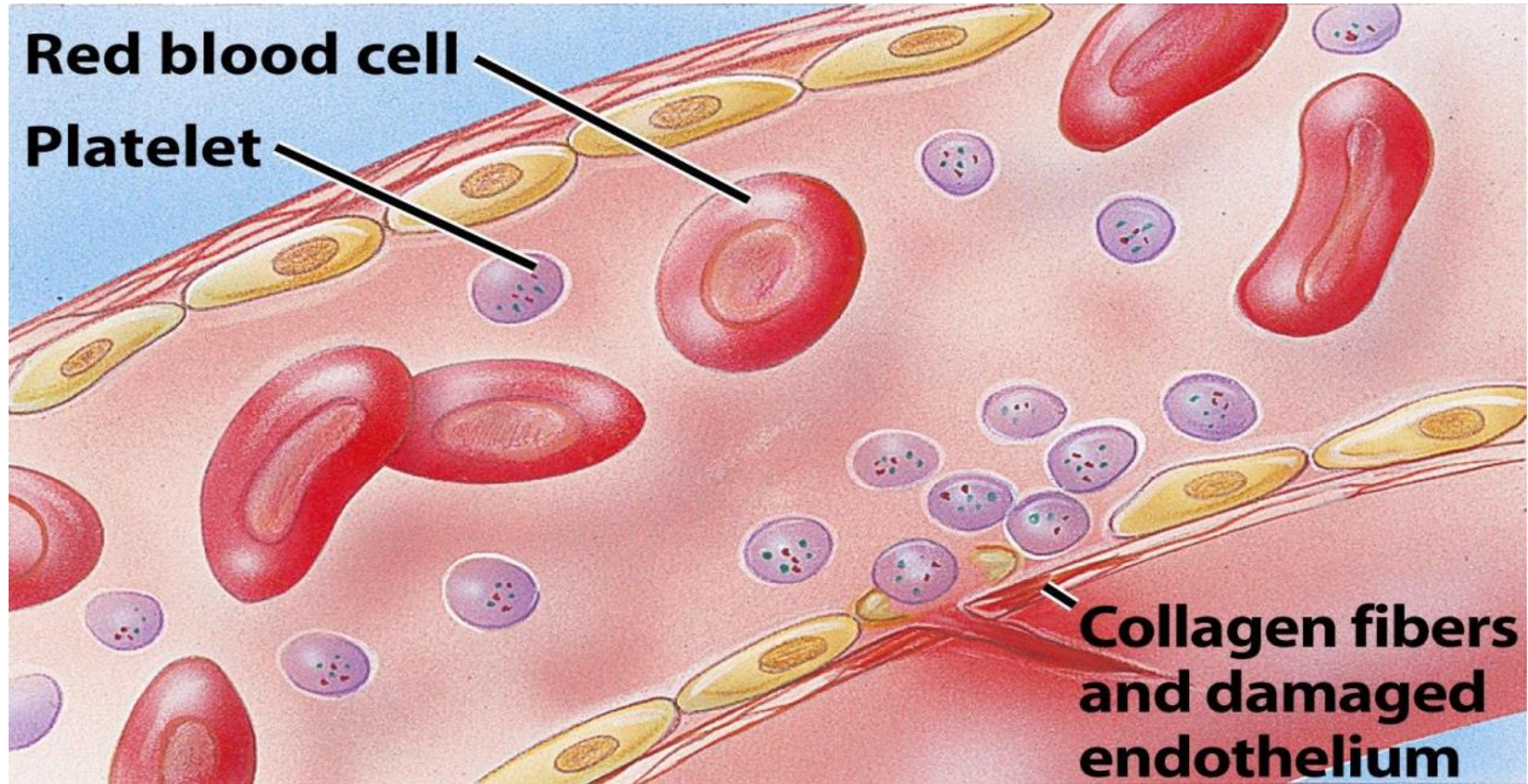
## **Stages of Hemostasis**

- Vascular Constriction
- Formation of Platelet Plug
- Formation of Platelet Plug
- Fibrinolysis

# STAGES OF PRIMARY HEMOSTASIS

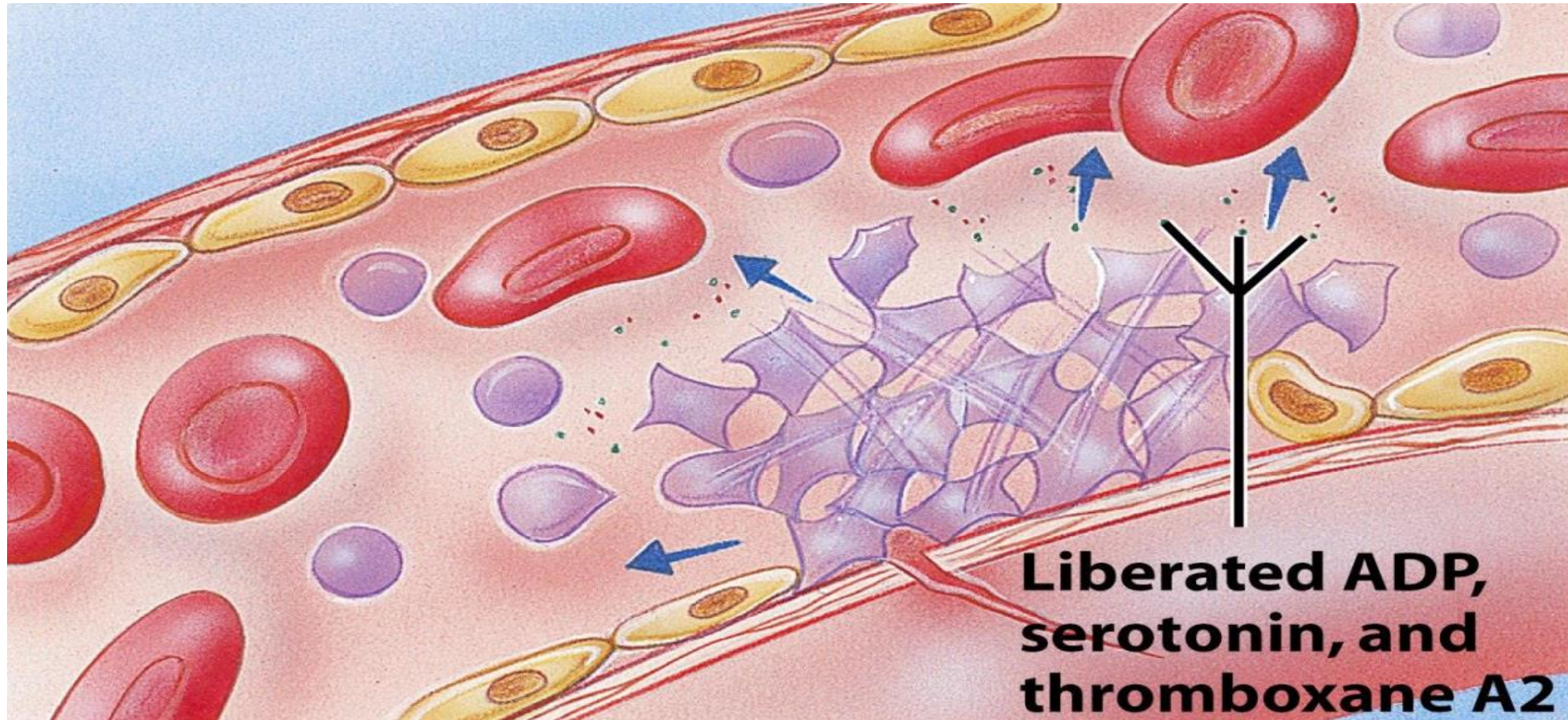


# platelet adhesion



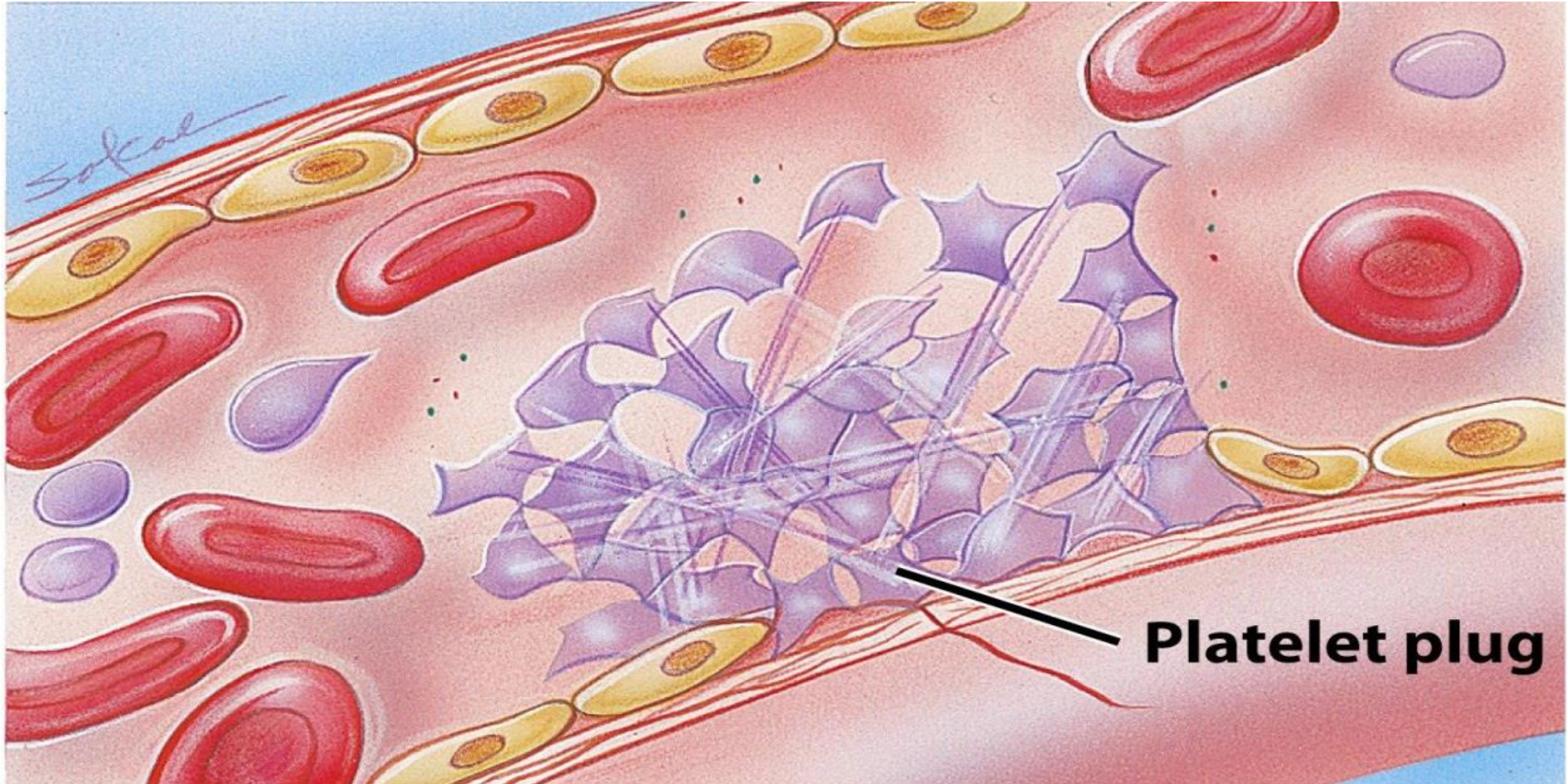


# Platelet activation : platelet release action





# Platelet aggregation



# **SO WHAT CAUSES BLEEDING DISORDERS?**

- **VESSEL DEFECTS**
- **PLATELET DISORDERS**
- **FACTOR DEFICIENCIES**

# BLEEDING TIME (B.T)

- Is the time interval between the skin puncture and spontaneous, unassisted (i.e. without pressure) stoppage of bleeding.
- The BT test is an in vitro test of platelet function.
- Purpose: to detect qualitative defects of platelets.
- Normal bleeding time ; 1 – 5 min.



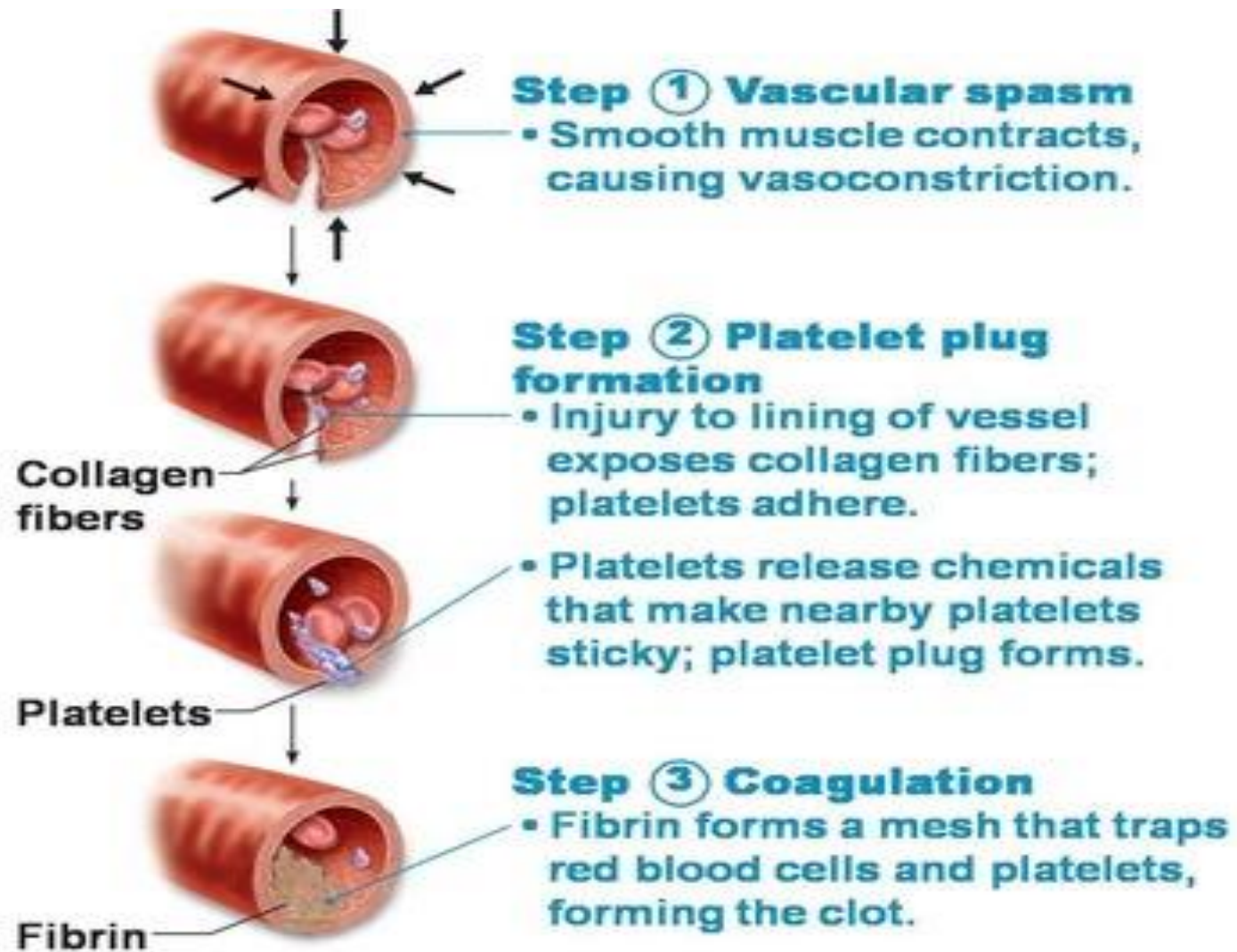


Figure 17.13

# Bleeding Time

- **Materials and methods**

- Lancet
- Stop watch
- Circular filter paper
- Alcohol

# Bleeding Time

- **Materials and methods**

- A disposable lancet is used to make cut into the finger usually.
- A stopwatch is started immediately and every 30 seconds filter paper is used to draw off the blood.
- The time from when the incision is made until all bleeding has stopped is called the bleeding time.
- The test is finished when bleeding has stopped completely.
- Count the number of blood spots and express your result in minutes and seconds.



# CLOTTING TIME ( C.T )

- **COAGULATION TIME**

- **Definition :**

- is the time interval between the entry of blood into the glass capillary tube, or a syringe, and formation of fibrin threads
- **Normal Clotting Time : 3 – 6 min.**
- Prolonged clotting time is due to severe deficiency of any of the coagulation proteins.
- Weak friable clot called hypofibrinogenaemia.
- Method : capillary tube method.

# Clotting time - capillary method

- **Material**
- **1. Sterile disposable pricking lancet.**
- **2. Stop watch**
- **3. Dry capillary tube (non heparinized)**
- **4. Cotton Swab .**
- **5. 70 % ethyl alcohol**

# Clotting time - capillary method

- Clean your finger with alcohol
- [?] Prick the finger by a lancet and note the time using a stop watch
- [?] Load a capillary tube to at least  $\frac{1}{2}$  full
- [?] After about 2 mins, take the loaded capillary tube between your thumb and forefingers and gently break in half
- [?] Slowly pull the ends part to see the insoluble fibrin strands
- [?] Do a break every 30 sec, once the clot is formed we record the time
- The clotting of blood with this method involves both the intrinsic and the extrinsic systems of clotting. There is injury to the blood (coming in contact with glass, intrinsic pathway), and the injury to the tissues (extrinsic pathway).



**WHY BLOOD DOES NOT CLOT IN  
CIRCULATION ?**