



# *Bleeding Time & Clotting Time*

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***Hemostasis:*** The process of stoppage of bleeding.

**Or**

The natural process or mechanism of prevention of blood loss through the injured vessel .

**This process has three main events :**

- 1. Contraction of blood vessel :**Contraction of the smooth muscles in the wall of the blood vessel. This reduces the flow of blood and loss from the defect in the vessel wall. The term for this reduction in the diameter of a vessel is **vasoconstriction**.
- 2. Aggregation of platelets :**Activated platelets become sticky and adhere to the defect to form a temporary platelet plug; due to bind of platelets to collagen tissue (**platelet plug formation**).
- 3. Formation of a (blood clot )**.

## *Tests for Hemostasis:*

1- Bleeding Time

2- Clotting Time

### **What is the clinical significance of doing BT&CT?**

1. History of frequent ,persistent beeding.
2. Before every minor and major surgery (e.g. tooth extraction).
3. Before taking biopsy (bone marrow,liver,kidney etc.).
4. Family history of bleeding disorder.
5. Before and during anticoagulant therapy.

**Bleeding time:** the time interval between the skin puncture and spontaneous, unassisted stoppage of bleeding.

***Clinical Applications:***

1. Von Willibrand disease.
2. Thrombocytopenia.
3. Platelets functional disorder.
4. Thrombocythemia.

## **Medication effect on BT:**

**These medication include:-**

anticoagulant, anticancer drug, aspirin and aspirin-containing preparations. Since the taking of aspirin or related drugs are the most common cause of prolonged bleeding time, no aspirin should be taken two weeks prior to the test.

## Bleeding Time (Duke Method)

### Apparatus and Reagents:

1. Alcohol .
2. Sterile disposable lancet .
3. Stopwatch .
4. Filter paper .
5. Glass slide .

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## Procedure:

1. Clean the lobe of the ear or tip of a finger with alcohol and let dry .
2. Puncture of ear lobe or finger using sterile blood lancet ,for ear; glass slide is placed behind the ear lobe .
3. Start the stopwatch at the moment of the puncture .
4. Blot the blood with the filter paper every 30 second ;avoid touching the skin ,move the filter paper so that each drop of blood touches a clean area .
5. When the filter paper no longer shows signs of blood ,stop the stopwatch and record the time .

**Normal value is 1-5 minutes .**

**Clotting Time:** the time interval between entry of blood into glass capillary tube ,or a syringe and formation of fibrin threads.

***Clinical Applications:***

1. Hemophilia
2. Liver disease
3. Renal disease
4. In hypofibrinogenemia.



# Clotting Time (Capillary Tube Method)

## Apparatus and Reagents:

1. Capillary tube (without heparin) .
2. Lancet .
3. Stopwatch .
4. Alcohol .

## **Procedure:**

1. Clean the finger with alcohol and let dry .
2. Puncture the finger using sterile blood lancet.
3. Fill the capillary tube with blood and estimate the time from the beginning of filling .
4. After 30 second break a pieces of the capillary tube and continue breaking every 30 second until a fibrin thread is seen between the two broken end .

**Normal is 5-10 minutes .**

## Home Work:

1. Why clotting time is more than bleeding time?
3. In clotting time experiment. Why did you use (blue) capillary tube rather than (red) capillary tube?
4. In bleeding time experiment. After puncturing your finger, why it should be gently touched to the filter paper and not pressed?

Thank You

