



## ERYTHROCYTE SEDIMENTATION RATE (ESR)

ESR is a simple non-specific screening test that indirectly measures the presence of inflammation in the body. It reflects the tendency of red blood cells to settle more rapidly in the face of some disease states, usually because of increase in plasma fibrinogen, immunoglobulin, and other acute-phase reaction proteins. Changes in red cell shape or numbers may also affect the ESR.

There are two main pipettes used to measure the ESR: the Westergren and the Wintrobe Pipette. Each pipette produces slightly different results.

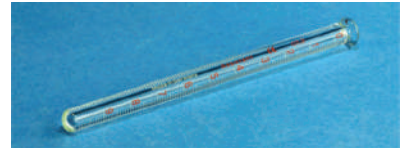
### WESTERGREIN METHOD

The Westergren method requires collecting 2ml of venous blood into a tube containing 0.5ml of sodium citrate. It should be stored no longer than 2 hours at room temperature or 6 hours at 4°C. The blood is drawn into a Westergren-Katz tube to the 200mm mark. The tube is placed on a rack in a strictly vertical position for 1 hour at room temperature, at which time the distance from the lowest point of the surface meniscus to the upper limit of the red cell sediment is measured. The distance of fall of erythrocytes, expressed as millimeters in 1 hour, is the ESR.



### WINTROBE METHOD

The Wintrobe method is performed similarly except that the Wintrobe tube is smaller in diameter than the Westergren tube and only 100mm long. EDTA anticoagulated blood without extra diluent is drawn into the tube, and the rate of fall of red blood cells is measured in millimeters after 1 hour. The shorter column makes this method less sensitive than the Westergren method because the maximum possible abnormal value is lower. However, this method is more practical for demonstration purposes.



### MICRO ESR SYSTEM

The ESR system consists of a pipette and a tube. An upper sealing cap located on the top of the pipette. The tube with a removable and pierceable rubber stopper, is supplied with pre-filled 3.8% sodium citrate. Once blood and citrate are mixed together, insert the pipette through the stopper and push to the bottom of the tube, the blood automatically reaches the 0 level.

### ESR PIPETTE STAND

- The Pipette Stand is designed to hold Pipette and ESR tubes.
- Capable of holding 10 ESR Pipette exactly in vertical position

