



ESR

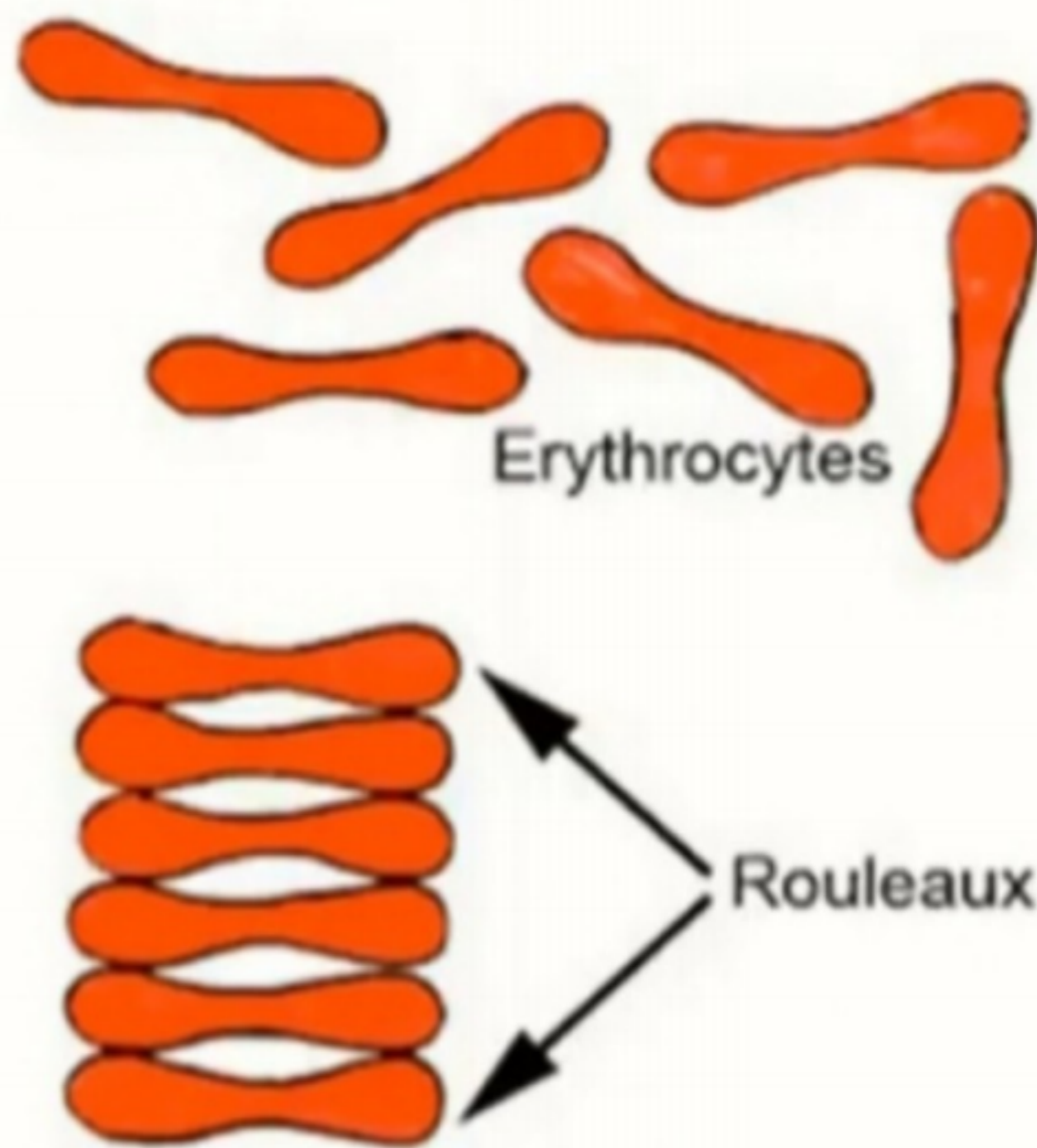
Physiology Lab-114

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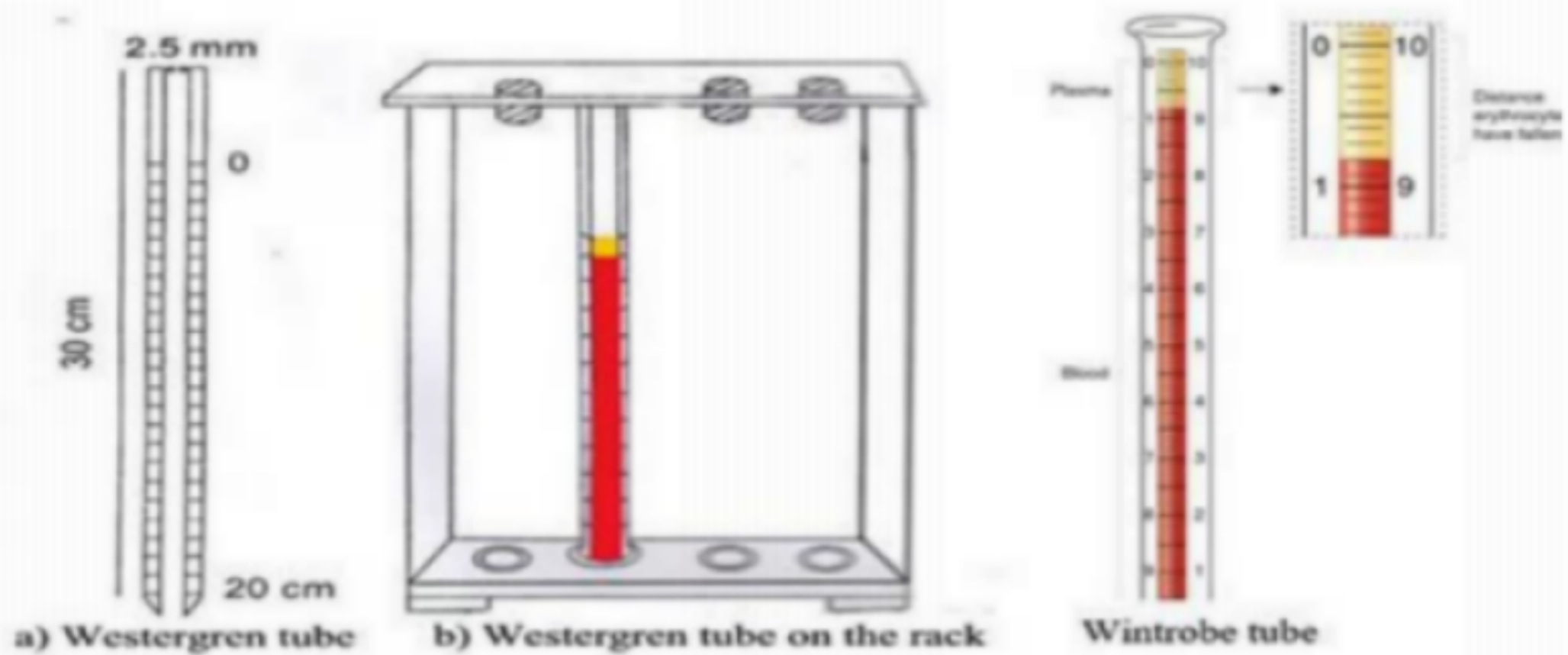
What is an Erythrocyte Sedimentation Rate (ESR)?

An erythrocyte sedimentation rate (ESR) is a bloodtest that that can show if you have inflammation inyour body. Inflammation is your immune system'sresponse to injury, infection, and many types ofconditions, including immune system disorders, certain cancers, and blood disorders



Methods of determining ESR

1. Westergren
2. Modified Westergren (Commercial disposable ESR kits)
3. Wintrobe
4. Automated ESR Analyzer



Materials required:

1. Westergren tube or wintrobe tube
2. Anticoagulant: 0.1 M sodium citrate
3. in modified westergren method EDTA is used as anticoagulant

Procedure for ESR estimation:

- Withdraw 4 ml of venous blood
- Mix exact 10ml of sodium citrate with 4ml of venous blood in a tube
- Invert the tube 2-3 times to mix the blood thoroughly with anticoagulant
- Fill the westergren tube up to mark 0 and place in the rack at room temperature undisturbed and away from sunlight.
- Take the reading exactly after 1 hour. Record in millimeters from top surface of column to top of RBC sediments.

Result:

- Normal value of ESR
 - Female:
 - under 50 years- 20 mm/hr
 - above 50 years- 30mm/hr
 - Male:
 - Under 50 years- 15mm/hr
 - Above 50 years- 20 mm/hr

Clinical application of ESR estimation:

- ESR test is non-specific test although it is used as indication of presence of disease
- ESR value increase during rheumatoid arthritis, chronic infection, carcinoma, tissue destruction and nephritis
- During pregnancy, ESR increase moderately from 10th or 12th weeks onwards and return to normal after delivery.
- ESR value decreases in sickle cell anemia and congestive heart failure .