Aim: Determination of Tidal Volume and Vital Capacity

References:

1. Guyton, A. C., & Hall, J. E. (2016). Textbook of Medical Physiology (13th ed.). Philadelphia, PA: Saunders.

2. American Thoracic Society/European Respiratory Society. (2002). ATS/ERS Statement on respiratory muscle testing. American Journal of Respiratory and Critical Care Medicine, 166(4), 518-624.

Introduction:

Tidal volume (TV) refers to the volume of air inhaled or exhaled during normal breathing at rest, while vital capacity (VC) is the maximum volume of air that can be exhaled after a maximum inhalation. These measurements are essential in understanding respiratory function and can provide valuable insights into lung health.

Materials:

1. Spirometer

2. Mouthpiece or nose clip

3. Recording device (pen and paper or computer software)

4. Subject for testing

Procedure:

1. Calibrate the spirometer according to the manufacturer's instructions.

2. Ensure the subject is in a comfortable seated position.

3. Instruct the subject to breathe normally through the mouthpiece or to use a nose clip to prevent air leakage through the nose.

4. Start recording the baseline measurements.

5. Instruct the subject to take a deep breath in (maximum inhalation) and then exhale forcefully and completely into the spirometer.

6. Record the volume of air exhaled.

7. Repeat steps 3 to 6 at least three times to ensure accuracy and consistency.

8. Calculate the tidal volume by averaging the volumes of air exhaled during normal breathing.

9. Calculate the vital capacity by averaging the maximum volumes of air exhaled after maximum inhalation.

10. Record all measurements accurately.

Sample Result Table:

Trial	Tidal Volume (mL)	Vital Capacity (mL)
1	500	3500
2	480	3450
3	510	3550
Average	497	3500