

Human Anatomy & Physiology Practical – Spirometry/ Baseline Respiratory Function

Learning Objectives

- To define the volumes and capacities of the respiratory tract and explain their functional significance
- To demonstrate the use of a a spirometer to determine pulmonary volumes and capacities.
- To be able to record data on excel documents accurately and understand the effects of the measurements you have taken.

Practical - Respiratory

- Ventilation

- the mechanical process of moving air into and out of the lung.
- Inspiration (Inhalation), the process of drawing air into the lungs
- Expiration (Exhalation), the process of expelling air from the lungs
- Ventilation is required for respiration to occur
- External respiration happens when oxygen and carbon dioxide are exchanged between the blood and the air in the lungs
- Internal respiration happens when gases are exchanged between the blood and the body cells

Spirometry

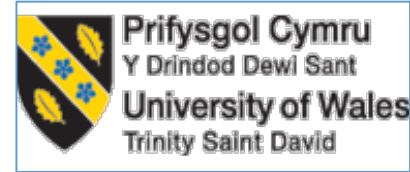
- Use of instrumentation to determine basic pulmonary volumes and pulmonary capacities
- Pulmonary Volumes
 - Amount of air moved in and out of the respiratory tract during the respiratory cycle (mL/L)



Why do we need Spirometry?

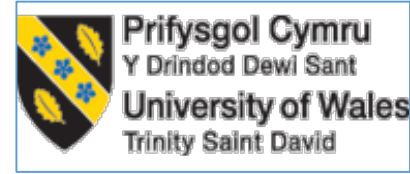
- To determine the amount of pulmonary impairment that there may be clients or people that you are dealing with on a day to day basis
- To assess if medications are being effective?
- To assess at risk groups?

Pulmonary Volumes



- Tidal Volume
 - Volume of air moved in and out of lungs during normal breathing (approx 0.5L)
- Expiratory Reserve Volume
 - Amount of air that can be forcibly expired after a normal expiration (approx 1.1L)
- Vital Capacity
 - Amount of expired air that can be expired after a forceful inspiration (approx 4.6L)
- **Forced Expiratory Volume (FEV₁) & Forced Vital Capacity**
 - It measures how much air a person can exhale during a forced breath. FVC is the amount of air expired in FEV test.
- Inspiratory Reserve Volume
 - Inspiratory reserve volume is the amount of air that can be forcibly inspired after normal inspiration (approx 3L)

Use of Spirometer



- Switch machine on
- Input relevant data (Anthropometric)
- Use a new mouthpiece between clients
- Apply nose clip
- Take a deep breath in and EXPIRE fully with lips placed firmly around the mouthpiece

Task

After getting your baselines, repeat the test after jogging on the spot for 1 minute. What result are you expecting to see?

Record all your results on the excel document under a separate TAB