

## LABORATORY 14 – RESPIRATORY PHYSIOLOGY

### Purpose

This lab introduced the use and theory behind incentive inspiratory devices and a portable spirometer.

### Procedures

#### 14-D: Incentive inspiratory devices

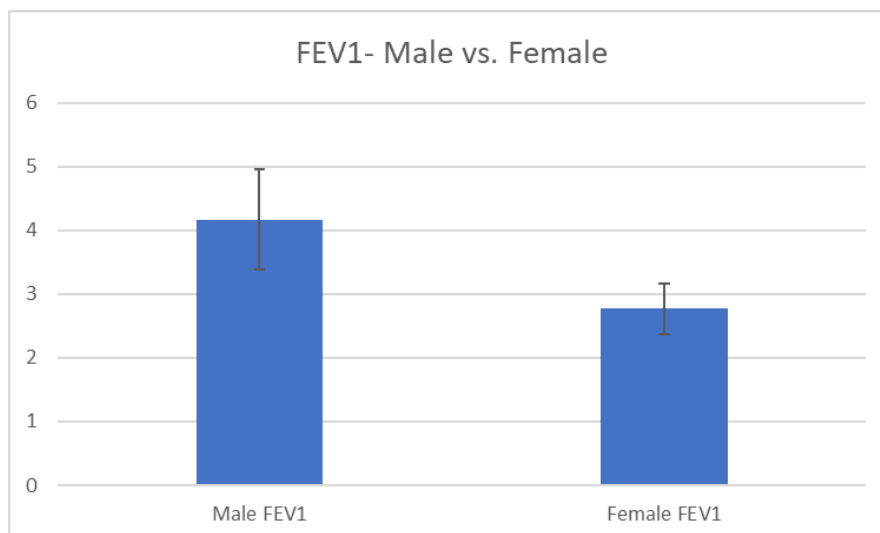
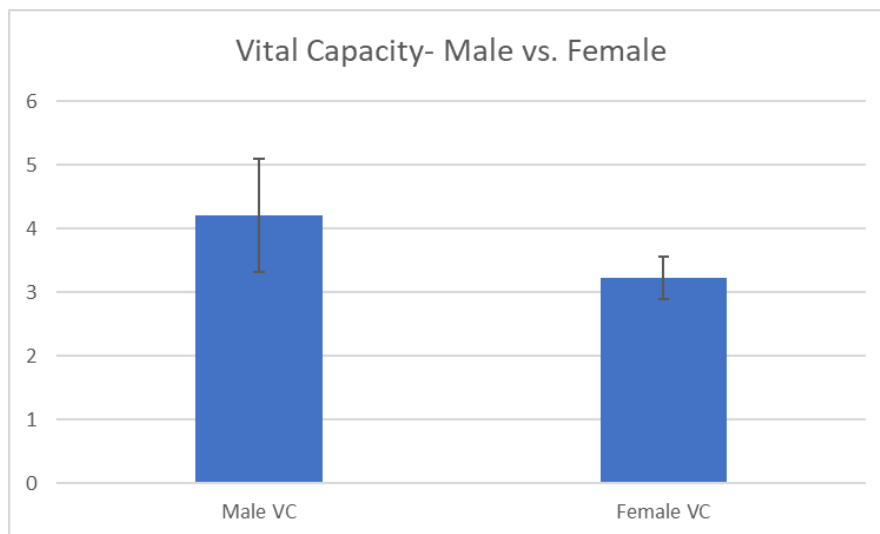
Incentive inspiratory devices are used in clinical settings, such as hospitals, for rehabilitating respiratory and cardiac patients. When patients undergo open-heart surgery, for example, the respiratory muscles are cut and need to be strengthened following surgery to avoid complications such as pneumonia. In addition, these incentive inspiratory devices are sometimes used by patients who remain bed-ridden for long periods. Since inspiration is an active process, these muscles are targeted during rehabilitation. The patient can see the progress that is being made and have incentive to improve. Several different models of these instruments are available but all are based on the same premise of having the patient breathe in as deeply as possible. You will have the opportunity to try one or more of these devices and measure your inspiratory capability.

#### Procedure

1. Obtain an incentive device and attach your disposable cardboard mouthpiece and white (or blue) filter to the breathing tube. The filter is quite a bit bigger than the breathing tube, so use your hand to try to get the best seal possible, it is not crucial to have a complete seal.

2. Breathe in as deeply as possible and record the measurement given on the device.  
Depending upon the model, you may have to move colored balls up plastic columns or move a bellows within a column.
3. Record your values. Discard the disposable cardboard mouthpiece and place the filter in the correct tub after use (the tub is labeled).

## Results



## Discussion

In this lab, we investigated the various aspects of respiratory physiology that focused on parameters such as tidal volume, vital capacity, and respiratory rate. The data collected revealed important insights into the dynamics of lung function and respiratory mechanics. The amount of data that was received shows that males have more vital capacity and tidal volume than females and the data that it received from each individual comes from different factors such as age, fitness level, and overall health. Overall, the discussion highlights the relevance of respiratory physiology in understanding the intricate mechanisms that govern breathing and its implications for human health.

## Conclusion

In conclusion, this lab deepened the understanding of respiratory physiology by exploring key parameters and employing spirometry measurements. The variability observed among participants emphasized the need for personalized approaches in assessing respiratory health. The results obtained contribute valuable insights to the broader understanding of lung function, and the significance of accurate data collection techniques was underscored. Moving forward, this knowledge can be applied in clinical settings for the assessment of respiratory conditions and the development of targeted interventions.