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BIOL 125 - 20895
Lab Day: Thurs
11/09/2023

Physiology Lab Report #14-

Lab 14: Respiratory Physiology

Purpose

- The purpose of this lab was to measure and record different lung capacities using a spirometer. By analyzing the data obtained from the experiments, we are able to determine the relative pulmonary condition of the class and compare the data. This lab allowed us to show the differences in vital capacity between the two different biological sexes.

Procedures

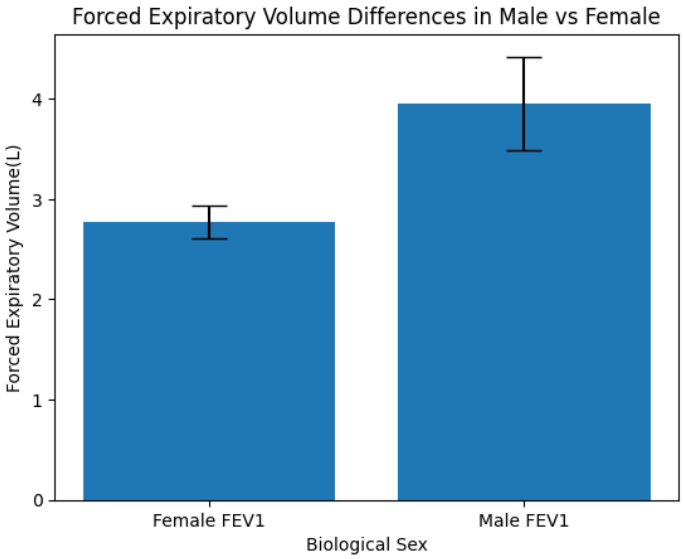
14-B: The Forced Vital Capacity (FVC) or Forced Expiratory Volume (FEVT) – Morgan ComPAS Pneumotrac

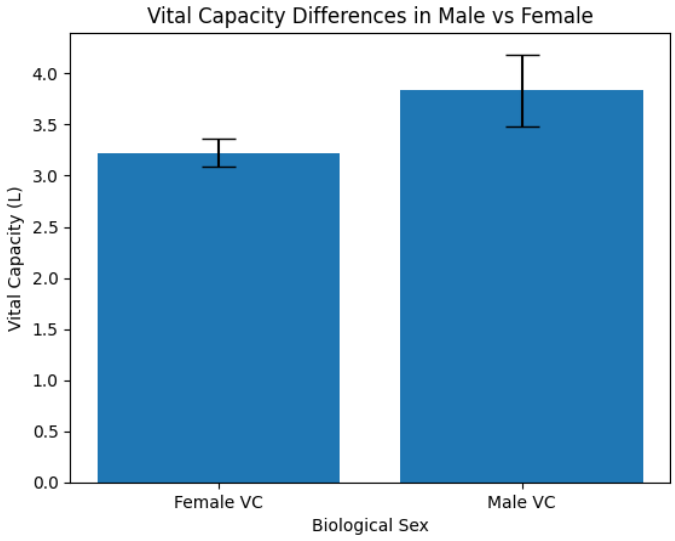
1. The Morgan ComPAS computer program already takes into account the BTPS correction factor.
2. Make sure to fully insert the Pneumotrac filter/mouthpiece and avoid any air leakage through your nose for accurate results.
3. Follow your instructor's verbal instructions during the test. Begin with tidal breathing, then take the deepest breath possible and forcefully exhale until instructed to stop. Your instructor will tell you your "FVC Volume Time Curve."
4. To calculate the vital capacity (forced expiratory volume), measure the height of the highest peak of the curve in millimeters. Multiply that length by 66.67 ml/mm, which is our FVC conversion factor. Round off the result to whole numbers.
5. Use the gridlines to double-check your figures and ensure they are in the correct range.

14-C: Portable spirometry

1. Open the gray plastic box labeled "BASELINE Lung Capacity Spirometer" on your lab desk. Inside the lid, you'll find specific instructions. Make sure to read the whole inside page on "how to use."
2. Attach the clear plastic mouthpiece to the spirometer and ensure that the measurement indicator is at zero before starting.
3. Remember to only exhale into the spirometer and not inhale from it.
4. After exhaling, record the measurement from the spirometer. Repeat this process 2 more times.
5. Compare the measurements and take the highest measurement.

Results





Discussion

- During the lab, the lung capacities of tidal volume, vital capacity, expiratory capacity, and expiratory reserve volume were measured. These measurements provided valuable insights into the functioning and efficiency of their respiratory systems. By calculating the timed vital capacity (VC) or forced expiratory volume (FEV1), we were able to assess the respiratory health of everyone and the differences in sex.It was interesting for me to see that my VC was pretty average, I am glad to know I am breathing properly, or well enough. We were able to determine that males have a higher VC and FEv than females in our class.

Conclusion

- The basis of this experiment was for us to understand the respiratory system and its vital role in cellular respiration. By exploring lung capacities and utilizing advanced measurement techniques, we were able to have valuable insights into the pulmonary condition of individuals and potentially identify areas for improvement in respiratory health.