Lab 14-Respiratory Physiology

Bio 125

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## Purpose

The purpose of this activity was to learn the various methods that can be used to measure lung capacity. I participated in measuring my own lung capacity through the Morgan ComPas computer program, the forced expiratory volume and vital capacity using a wheel spirometer.

## Specifics

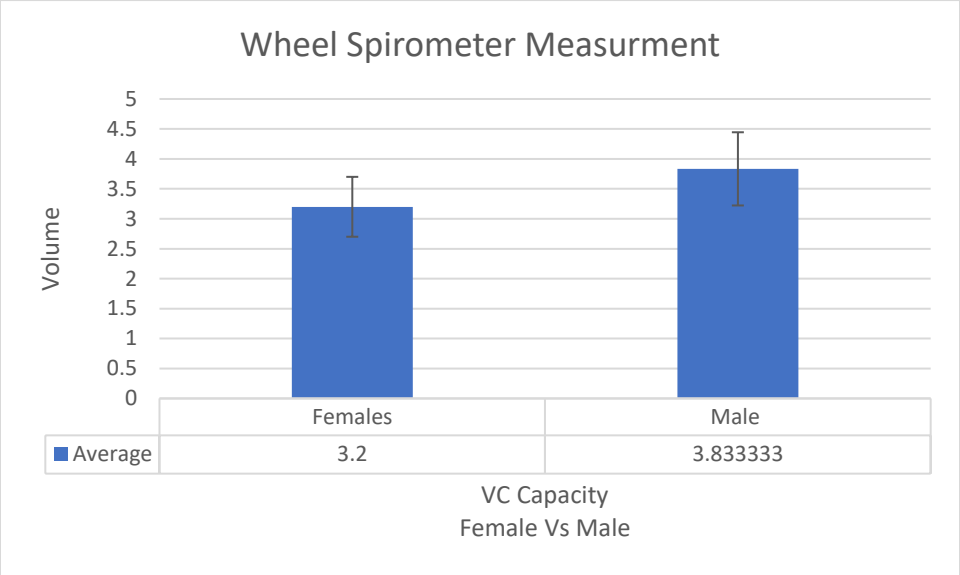
**14-B**: The Forced Vital Capacity (FVC) or Forced Expiratory Volume (FEVT)–Morgan ComPAS Pneumotrac.

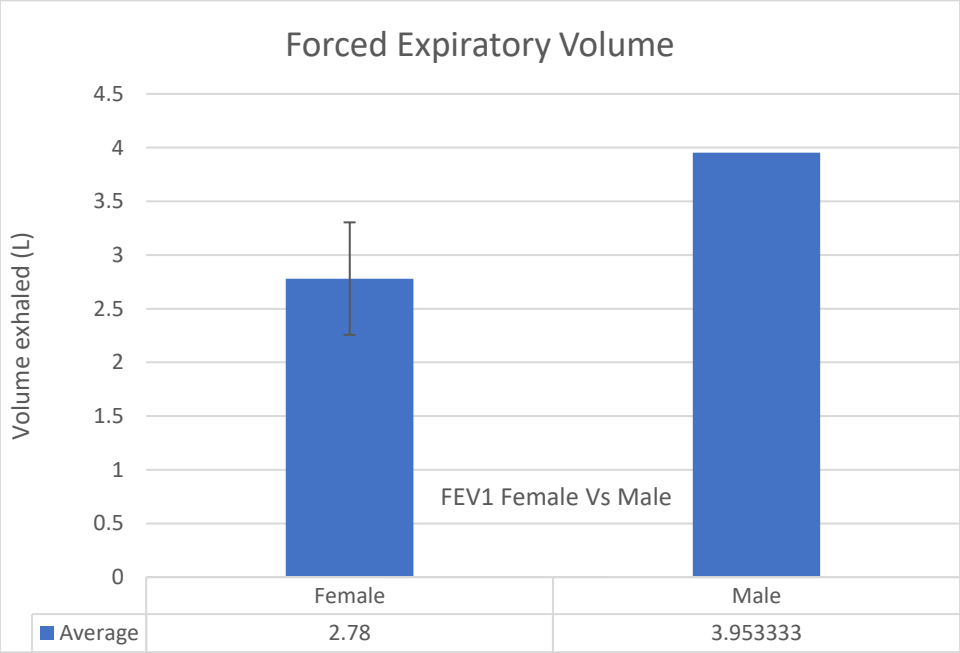
The Morgan ComPAS computer program has already calculated and factored in the BTPS (Body Temperature Pressure Saturation) correction factor. Fully insert the Pneumotrac filter/mouthpiece. After starting the FVC test, follow the verbal instructions of your instructor: begin with your mouth off the mouthpiece so the pneumotach can equilibrate; after getting a good seal with your mouth, start with tidal breathing; when you are ready, take in the deepest breath possible, then forcefully blow it out as fast as you can and keep squeezing until instructed to stop.

**14-C**: Portable spirometry

Open the grey plastic box on your lab desk that says “BASELINE Lung Capacity Spirometer” on the lid. Inside the lid of the box is a white piece of paper that has specific instructions. Insert the clear plastic mouthpiece on the “Windmill-Type” spirometer and make sure the measurement indicator is at the zero position before beginning. Make sure you only exhale into the spirometer, DO NOT inhale from it. After exhaling, record the measurement from the spirometer. Calculate your predicted vital capacity from the nomograms available in the lab. Using a straight edge, make a line matching your height and age to the vital capacity prediction. Note that the VC is in liters whereas other measurements have been taken in milliliters.

## Results




## Discussion

For this activity, I used the data from Thursday's class. I also had some difficulties when generating the graphs with the error bars, but in the end, I figured it out.

**Conclusion**

I learned how to measure lung capacity using the wheel spirometer. I also got the FEV1 through the ComPas computer program. I did the first activity for myself and for my lab partner.

I also re-learned how to make graphs with error bars and to get the p value of each of the graphs. However, I did not know if I did it right. (VC p value= 0.2370476, FEV p value= 0.1029045).