Tammy Foreman

Lab 14

11/21/2023

Title: Respiratory Physiology

Purpose: To test the rate that air travels from the lungs using the Forced Vital Capacity test.

Procedure: 1. The Morgan ComPAS computer program has already calculated and factored in the BTPS (Body Temperature Pressure Saturation) correction factor.

2. Fully insert the Pneumotrac filter/mouthpiece you purchased at the bookstore. If you have difficulty keeping air from leaking through your nose, you may need to wear a nose clip, as air leakage will result in inaccurate results.

3. Be sure the correct student information is loaded up before you start the FVC test.

4. 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. The instructor will print out your "FVC Volume Time Curve" (part of your 14-B results).

5. To calculate the vital capacity for the FVC test (also called the forced expiratory volume), measure the height of the highest peak of the curve in mm and multiply that length in mm by 66.67 ml/mm (our FVC conversion factor). Then round off ml to whole numbers. (NOTE: this is similar to the 14-A SVC calculations, but with a different conversion factor.) Just like in 14-A, use the gridlines to double check that your figures are in the ballpark (e.g., if you calculated the vital capacity in Fig. 14-2 on p. 94 to be 3635 ml, you must be off because you can tell from just

looking at the gridlines that it is much closer to 4500 ml than 3635 ml). Can you see this in Fig. 14-2?

6. Go to the “1 second” vertical line in your FVC graph and measure the height where the curved line crosses the 1 second vertical line in the same way as you did for the FVC in step 5. This is your FEV1 volume.

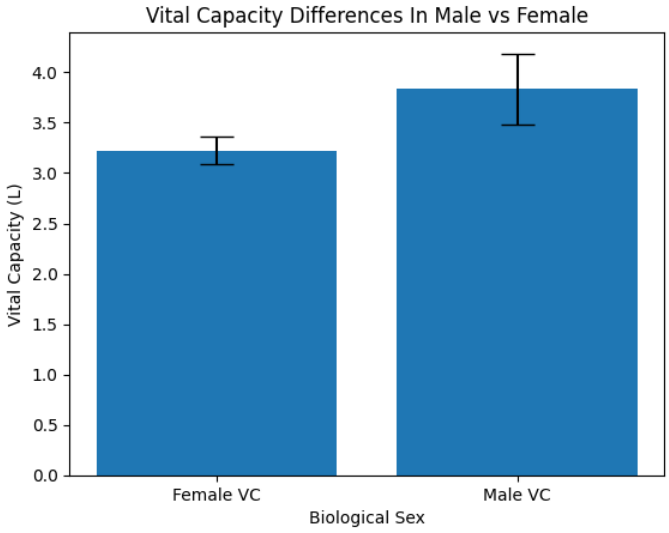
7. Divide the volume you calculated for FEV1 by the volume you calculated for the vital capacity in step 6, and then multiply by 100 to determine the percentage of the vital capacity exhaled at one second.

8. Go to the “3 second” vertical line in your FVC graph and measure the height where the curved line crosses the 3 second vertical line in the same way as you did in steps 5 and 6. This is your FEV3 volume.

9. Divide the volume you calculated for FEV3 by the volume you calculated for the vital capacity in step 6, and then multiply by 100 to determine the percentage of the vital capacity exhaled at three seconds.

10. Compare these values to the predicted values and explain possible causes for any differences.

Results:



Discussion: Male and Female students in the class were asked to use the Forced Vital Capacity test to determine what their rate of air flow travel was. I missed this lab, however I did get to hear the results in the next lab. I also got to see how we graphed the results collected.

Conclusion: Using the Forced Vital Capacity test the class was able to see that the male students had a higher air flow than the female students. Again, I did not attend lab 14 but, I enjoyed going over the results in class and learning to make the graph for the results portion.