Respiratory Distress

HASPI Medical Anatomy & Physiology 14b

Lab Activity

Name(s): _____

Period: _____ **Date:** _____

Background

Respiratory Distress

What is Respiratory Distress?

What COPD stand for?

Fill in the following chart:

Disorder	Symptoms	Causes
COPD		
Asthma		
Bronchitis		
Emphysema		

Fill in the following chart:

Condition	Respiratory Rate (#breaths/minute)
Normal	
Tachypnea	
Bradypnea	
Hyperventilation	
Hypoventilation	

Materials

Large straw Medium straw Small straw Timer

Procedure

This activity will allow you to simulate different levels of respiratory distress. You will be measuring the impact of respiratory distress on the respiratory rate and pulse.

Directions

complete

Step 1	Choose a test subject in your group. Anyone who is sick or already has respiratory issues should not be the test subject. At any point, if the test subject gets light-headed, have them stop and take the respiratory rate and pulse.	

A. Control Trial

Step 2	Have the test subject sit quietly.	
Step 3	Take the respiratory rate of your test subject. Watch the rise and fall of the chest and count the number of breaths in 30 seconds. Multiply this number by 2 and record for "A. Control Trial for No Exercise" in Table 1.	
Step 4	Take the pulse of your test subject. Find the radial pulse using your middle and index fingers on the thumb side of the test subject's wrist. Count the number of beats in 15 seconds. Multiple this number by 4 and record for "A. Control Trial for No Exercise" in Table 1.	
Step 5	Have the test subject stand and jog in place for 60 seconds. The test subject may also do step-ups on a step or chair.	
Step 6	Immediately at the end of 60 seconds, take the test subject's respiratory rate and pulse. Record in "A. Control Trial for Exercise" in Table 1.	
Step 7	Have the test subject rest at least 2 minutes before starting the next step.	
B. Mild Respiratory Distress		
Step 8	Have the test subject sit quietly and ONLY BREATHE through the LARGE STRAW for 60 seconds. The test subjects will need to hold their noses closed to ensure they are only breathing through the straw.	
Step 9	Immediately at the end of 60 seconds, take the test subject's respiratory rate and pulse. (Note: The test subject does not need to continue breathing through the straw while you are taking the respiratory rate or pulse). Record in "B. Mild Respiratory Distress for No Exercise" in Table 1.	
Step 10	Have the test subject stand and jog in place for 60 seconds while ONLY BREATHING through the LARGE STRAW. The test subject may also do step-ups.	
Step 11	**IMPORTANT: IF AT ANY TIME THE TEST SUBJECT STARTS FEELING LIGHT-HEADED OR IS SEVERELY SHORT OF BREATH, HAVE HIM OR HER STOP IMMEDIATELY AND SIT DOWN. TAKE THE RESPIRATORY RATE AND PULSE.**	
Step 12	Immediately at the end of 60 seconds, take the test subject's respiratory rate and pulse. (Note: The test subject does not need to continue breathing through the straw while you are taking the respiratory rate or pulse). Record in "B. Mild Respiratory Distress for Exercise" in Table 1.	
Step 13	Have the test subject rest, breathing normally (no straw) for at least 2 minutes before starting the next step.	
C. Medium Respiratory Distress		
Step 14	Repeat steps 8 – 13 using the MEDIUM STRAW. Record results in "C. Medium Respiratory Distress" in Table 1.	
D. Severe Respiratory Distress		
Step 15	Repeat steps 8 – 13 using the SMALL STRAW. Record results in "D. Severe Respiratory Distress" in Table 1.	

Table 1. Effect of Respiratory Stress on Respiratory Rate and Pulse

A. Control Trial – No Straw

No Exercise		Exercise	
Respiratory Rate	Pulse	Respiratory Rate	Pulse

B. Mild Respiratory Distress (Large Straw)

No Exercise		Exercise	
Respiratory Rate	Pulse	Respiratory Rate	Pulse

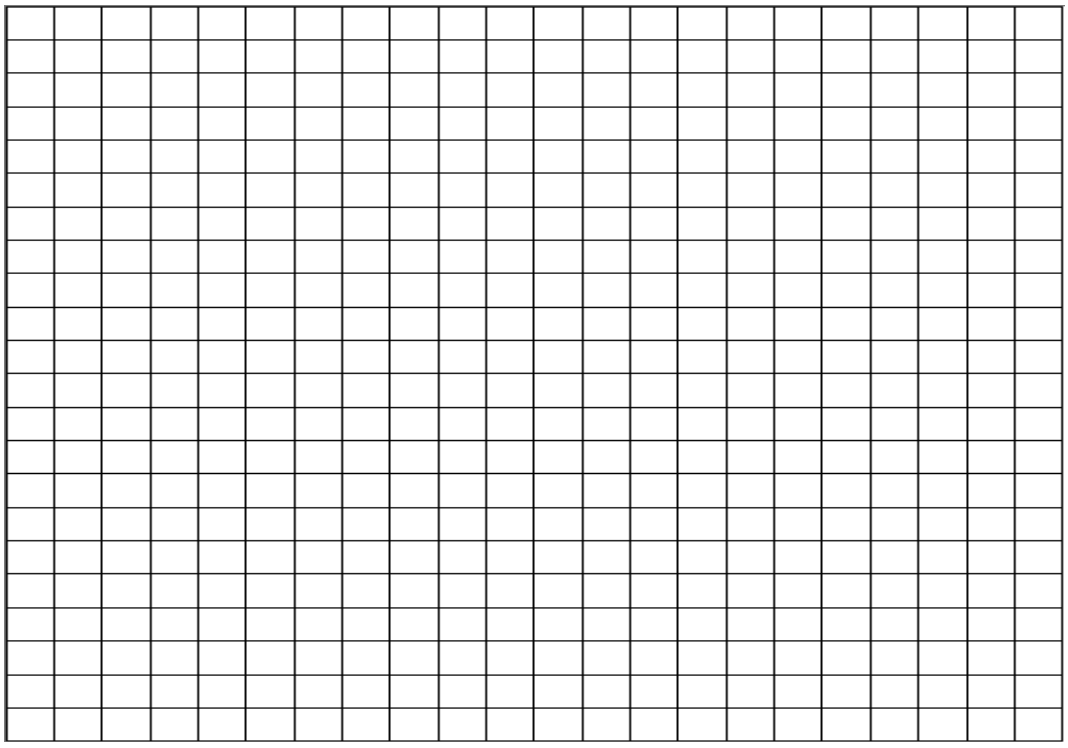
C. Medium Respiratory Distress (Medium Straw)

No Exercise		Exercise	
Respiratory Rate	Pulse	Respiratory Rate	Pulse

D. Severe Respiratory Distress (Small Straw)

No Exercise		Exercise	
Respiratory Rate	Pulse	Respiratory Rate	Pulse

Create a bar or line graph summarizing your results from Table 1 in the grid below.



Analysis Questions - *on a separate sheet of paper complete the following*

1. Describe how the respiratory rate was affected by mild, medium, and severe respiratory distress in this lab.
2. Describe how the pulse was affected by mild, medium, and severe respiratory distress in this lab.
3. How did the straws represent different levels of respiratory distress?
4. How did increasing respiratory distress impact the mental and emotional level of the test subject?
5. How did exercise impact the respiratory rate and pulse?
6. After completing this lab, how do you think an individual suffering from an asthma attack, chronic bronchitis, or emphysema might feel about exercising?
7. Why was it important to give the test subject at least 2 minutes to rest before moving to the next step?
8. **CONCLUSION**: In 1-2 paragraphs summarize the procedure and results of this lab.

Review Questions - *on a separate sheet of paper complete the following*

1. What is respiratory distress?
2. What can cause respiratory distress?
3. What is the difference between hyperventilation and hypoventilation?
4. What is the difference between tachypnea, bradypnea, and apnea?
5. Hypothesize as to why would paleness or cyanosis of the skin would occur when there is a lack of oxygen?
6. What causes audible breathing sounds such as wheezing?
7. What is asthma?
8. What causes asthma?
9. What are the symptoms of asthma?
10. What is chronic bronchitis?
11. What causes chronic bronchitis?
12. What are the symptoms of chronic bronchitis?
13. What is emphysema?
14. What causes emphysema?
15. What are the symptoms of emphysema?