Name:  Date:

Obstructed Airways Lab

*Adapted from the University of Texas Health Science Center at San Antonio*

*Last updated: 10/18/22*

# Introduction

Dyspnea means “shortness of breath.” In this lab, you will record your experience of having an obstructed airway during rest and during activity, using the Rating of Perceived Dyspnea scale. The Rating of Perceived Dyspnea scale is a measurement of an individual's breathlessness and fatigue during exercise. The goal of this lab is to understand how altered anatomy of the respiratory system will affect one’s physical capabilities. For more information about the Rating of Perceived Dyspnea scale see the following:

* [Guide to Assessing Breathlessness from Lung Foundation Australia](https://pulmonaryrehab.com.au/patient-assessment/assessing-breathlessness/)
* [Dyspnea Scale and Exercise article from drugs.com](https://www.drugs.com/cg/dyspnea-scale-and-exercise.html)
* [Modified Medical Research Council: Dyspnea Scale on mdcalc.com](https://www.mdcalc.com/calc/4006/mmrc-modified-medical-research-council-dyspnea-scale)
* [Rating of Perceived Exertion - Borg Scale from Heart Online](https://www.heartonline.org.au/media/DRL/Rating_of_perceived_exertion_-_Borg_scale.pdf)

# Resources

* Straws
* Nose clip (optional)
* Stopwatch
* Pen or pencil
* Student worksheet with tables and discussion questions
* Physiology & Pathology by Visible Body

# Directions

## Part 1: Activity

1. Block your nose with either a nose clip or your hand. **You will keep the nose clip or your hand in place for the duration of the activity.** In this activity, you will be breathing solely through your mouth.
2. Sit for one minute and breathe normally. Rate the difficulty of this activity in table 1. For example, if you are able to breathe with no trouble you would rate this a zero.
3. Run in place for one minute. Rate the difficulty of this activity in table 1.
4. Rest for 1–2 minutes.
5. While sitting, place the straw in your mouth and breathe through the straw for one minute. Rate the difficulty of this activity in table 2.
6. Block your nose with either a nose clip or your hand. Place the straw in your mouth and run in place for one minute while breathing through the straw. Rate the difficulty of this activity in table 2.

## Table 1: Normal Breathing

|  | Shortness of Breath | At Rest | During Activity |
| --- | --- | --- | --- |
| 0 | Nothing at all |  |  |
| 0.5 | Very very slight |  |  |
| 1 | Very slight |  |  |
| 2 | Slight |  |  |
| 3 | Moderate |  |  |
| 4 | Somewhat severe |  |  |
| 5 | Severe |  |  |
| 6 |  |  |  |
| 7 | Very severe |  |  |
| 8 |  |  |  |
| 9 | Very very severe |  |  |
| 10 | Maximal |  |  |

**Table 2: Obstructed Airway**

|  | Shortness of Breath | At Rest | During Activity |
| --- | --- | --- | --- |
| 0 | Nothing at all |  |  |
| 0.5 | Very very slight |  |  |
| 1 | Very slight |  |  |
| 2 | Slight |  |  |
| 3 | Moderate |  |  |
| 4 | Somewhat severe |  |  |
| 5 | Severe |  |  |
| 6 |  |  |  |
| 7 | Very severe |  |  |
| 8 |  |  |  |
| 9 | Very very severe |  |  |
| 10 | Maximal |  |  |

## Part 2: Thought Questions

Answer the following questions:

1. How did your dyspnea ratings differ between activities?
2. Why was breathing through a straw during exercise more difficult than breathing normally during the same exercise?
3. Could you tell that your accessory muscles were being utilized more while breathing through the straw? Why did this occur?
4. What daily activities would be made difficult with an obstructed airway?
5. Open the Physiology & Pathology app by Visible Body and watch the Asthma and COPD animations. What anatomical changes are seen in both of these obstructive airway conditions?
6. How does your experience during this exercise relate to that of individuals with asthma or COPD?

**Bonus Question:** What symptoms would an individual with severe dyspnea experience?