

Name(s): _____, _____, _____

Date: _____

Lab - The Effect of Exercise on Breathing Rate and Heart Rate

Purpose: To look for evidence of the connection between the respiratory system and the circulatory system.

Materials:

- Stopwatch/timer
- Graph paper
- Heart Rate monitor (app)
- Smartwatch

Procedure 1 - Measuring Resting Heart Rate:

1. Take your partners pulse → locate the artery in your partner’s wrist. Gently press your index finger and one or two other fingers against the artery.
2. Count the number of pulses in 15 seconds.
3. Multiply that number by 4. This will give you the number of times the heart beats in 1 minute, which is the heart rate (number of beats per minute). Record this number in the data table.
4. Repeat steps 1-3 two more times. Add the three values together, and divide by three. This will give you your partner’s average resting heart rate.

	Trial 1 Partner #1 / Partner #2		Trial 2 Partner #1 / Partner #2		Trial 3 Partner #1 / Partner #2	
Number of pulses in 15 seconds						
Multiplied by 4						
Total =	A1	B1	A2	B2	A3	B3

** To calculate average BPM : Add A1 + A2 + A3 divide by 3 OR Add B1 + B2 + B3 divide by 3

Calculate average BPM (beats per minute) for **Partner #1** _____ **BPM** and **Partner #2** _____ **BPM**

Procedure 2 - Measuring Resting Breathing Rate:

1. Count the number of times your partner breaths (one inhale and one exhale) in 30 seconds.
2. Multiply that number by 2. That will give you the number of times your partner breathed in 1 minute, which is the breathing rate (breaths per minute). Record this number in the data table.
3. Repeat steps 1-2 two more times. Add the three values for breathing rate together and divide by three. This will give you your partner’s average resting breathing rate.

	Trial 1 Partner #1 / Partner #2		Trial 2 Partner #1 / Partner #2		Trial 3 Partner #1 / Partner #2	
Number of breaths in 30 seconds						
Multiplied by 2						
Total =	A1	B1	A2	B2	A3	B3

Graph your Data in two graphs, one for heart rate and one for breathing rate. Put **time (min)** on the **X-axis** and **heart/breathing rate** on the **Y-axis**. Be sure to include a descriptive title.



