Name _____ Period _____ Date _____

Lab: Influencing Human Pulse Rate

You are probably not aware of the frequent changes in your heart rate. Also, you are probably not aware of some of the conditions which cause these changes. Heartbeat may be influenced by many things, such as changes in body temperature or even body position.

To properly determine a person's heartbeat rate, a stethoscope is normally used. Measuring a person's pulse is a simpler method. As blood is pumped through arteries, a surge of pressure can be detected within the vessels. This surge is caused by the heart's pumping action. The pulse rate exactly equals the heartbeat rate.

Procedure:

Part A: Normal pulse rate: Locate your pulse on your neck or wrist. Count your pulse for 15 seconds. Multiply this number by four to determine your pulse rate for one minute. Record this number on data table 1. Run two more trials. Calculate your average pulse rate for one minute. Put your average pulse rate on the board. After all groups have recorded their averages, determine the class average.

Part B: Pulse while holding breath: While holding your breath, count your pulse for 15 seconds. DO NOT take in an extra deep breath before starting. Record in table 1 your pulse rate for one minute. Run two more trials. Determine the average and record. Determine and record the class average.

Part C: Pulse while holding arm in water: In a shallow pan filled with water, place your arm for one minute. After the minute, while your arm is still in the water, measure your pulse for 15 seconds. Record in table 1 your pulse rate for one minute. Run two more trials. Determine the average and record. Determine and record the class average.

Data:

Table 1

	Normal	Holding Breath	Arm in Water
Trial 1			
Trial 2			
Trial 3			
Total			
Average			
Class Average			

Analysis:

1. a. How is your normal pulse rate influenced (or changed) by breath holding?

   _____
   _____

   b. Using class average, how is normal pulse rate influenced by breath holding?

   _____
   _____

2. a. How is your normal pulse rate influenced (changed) by holding your arm under water?

   _____

   b. Using the class average, how is the pulse rate influenced?

   _____

3. Which experiment, breath holding or arm under water, brings about the bigger change in pulse rate? _____

4. a. How would your pulse rate be influenced by exercise?

   _____

5. Predict how the recovery rate of a person might differ from yours if that person...

   a. were an athlete in training.

      _____
      _____
      _____

   b. were a smoker.

      _____
      _____
      _____

   c. had exercised for six rather than two minutes.

      _____
      _____
      _____