Homeostasis Lab

PURPOSE:

To study the human body's reaction to the application of a moderate stress. To determine if relaxation can lower resting heart rate, and if there is a significant difference reaching cardiovascular homeostasis between sexes and between athletic and non-athletic individuals.

MATERIALS: Clock with second hand, data sheet and exercise clothing.

HYPOTHESES: Make **3** hypotheses: (#1 What will happen to the resting heart rate? *Example: Relaxation will lower resting heart rate because…* #2 and #3 hypotheses should be about which groups will reach homeostasis first **and** why you think so. Hint: Use some common knowledge about muscle size and exercise that increases endurance)

PROCEDURES:

1. One partner take the other's standing resting heart rate (**#1 rest**).
   - Heart rates are obtained by taking the radial pulse or carotid pulse for 10 seconds and then multiply by 6.
2. For one minute, close your eyes and concentrate on taking deep, slow breathes and try to lower or slow your heart rate down.
3. At the end of the minute, take the pulse again and record that as the **#2 rest**.
4. Move outside and after the instructor gives some last minute instructions, take a third resting heartrate **(#3 rest).**
5. Start stepping up and down at the pace set by the instructor. Obtain and record 1, 2, 3, 4, 5, and 6 min. exercise heart rates.
   • To obtain the exercise heart rates, after **each** minute have subject stop and take a 10 second pulse.
6. After the subjects complete the sixth minute of exercise, they should remain standing and a **1 minute** (#1 Recovery) and **5 minute** recovery (#2 Recovery) heart rate should be taken.
7. During the exercise session the recorder should also note any bodily changes occurring and record these observations in the data**.**
8. Convert all your heart rates to beats per minute by multiplying by 6 and record them on the group data table.

DATA: SEE ATTACHED DATA TABLE

ANALYSIS: Make **1 graph** with **6 lines** on it: individual group HR, class average HR, boys average HR, girls average HR, athletes average and non-athletes average. The x-axis (independent variable) will be the TIME increment of when you took a pulse reading. Be sure to properly label and title your graph or lose points!

CONCLUSION: This is the most important section of ANY lab report! Be detailed! Restate your hypotheses and support or reject with SPECIFIC data gathered from the experiment. Be sure to address why you think the graph leveled off for each group. Comment on how your individual group compared to the class average and other groups. Note any human errors that could have skewed the data. Mention any suggestions for future labs. (Address ALL areas or lose points!!)

Class Data Table:

Gender	Other	Rest #1	Rest #2	Rest #3	Exercise Min. 1	Exercise Min. 2	Exercise Min.3	Exercise Min. 4	Exercise Min. 5	Exercise Min. 6	Recovery #1	Recovery #2