Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of partner: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Measuring Heart Rate in a Mimicked “Flight-or-Fight” Response Experiment**

**Purpose**: (What is the significance of this experiment?)

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**Question** – Formulate a question that corresponds to what you are testing.

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**Hypothesis** – Which trial do you think will yield the greatest heart rate?

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**Prediction** – Predict the results for each trial.

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**Materials:**

* Stopwatch
* “Scary” Picture chosen:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Notebook
* Pencil
* Graph Paper
* Partner A – Person who is getting their heart rate measured and will run and jog and use the picture.
* Partner B – The recorder.

\*BOTH PARTNERS ARE RESPONSIBLE FOR ALL DATA!

**Procedure:**

1. Measure the resting heart rate or pulse of your partner by gently pressing your index and middle finger on their wrist about an inch below their palm. The person who is having their heart rate measured will be performing the rest of the procedures, with the other partner making sure to record all observations. Name of Partner A: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Why is it important that we do not use two people to run, jog and look at the picture when we have already measured the other partner’s heart rate?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Set the stop watch to one minute and only when the clock starts, count the number of beats felt in that one minute.

Resting heart rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_beats per minute.

1. After you have chosen the scary picture to be used, set the stopwatch to three minutes.
2. Partner A will stare at the picture for exactly three minutes.
3. Immediately after, Partner B must record the pulse.

Heart Rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ beats per minute.

1. Set the stopwatch to 5 minutes.
2. For five minutes, Partner A must jog in place.
3. Immediately record Partner A’s heart rate.

Heart rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ beats per minute.

1. Set the stopwatch to 5 minutes again.
2. For another five minutes straight, Partner A must run from one side of the gym to the other.

Heart rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ beats per minute.

**Results:**

1. Fill in the table below.

Heart Rates for Different Trials in Mimicked Flight-or-Fight Response

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Trial | Resting | Staring at “Scary” Picture | Jogging in Place | Running |
| Heart Rate (beats per minute)  |  |  |  |  |

1. Use your data to create a graph on graph paper with your partner.

Which will be the x-axis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which will by the y-axis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Thought Questions:

1. Explain your graph. Which trial yielded the highest heart rate? Why do you think this happened? Was your hypothesis correct? Were your predictions correct? Explain.

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1. This was a “mimicked” experiment. Was your partner actually “scared” when he or she looked at the scary picture? How do you think this affected your results?

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1. List and elaborate on some possible real-life examples that could initiate a “flight-or-fight” response.

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1. Based on this experiment’s results and what we have learned so far on how the nervous and endocrine system work, how will you handle yourself the next time you are in a stressful situation, where your body may trigger the “flight-or-fight” response. Explain and give examples.

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