**A Closer Look at Blood Pressure**

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

**PROCEDURE:** Find a partner. Between you and your partner decide who will be the exercise subject and who will be the water intake subject.

1. Find a partner
2. Decide which partner will be exercising and which will be drinking water
3. Use the sphygmomanometer to find your blood pressure (BP) 🡪 record this value in the table below under “Before Exercise” OR “Before Water” depending on which partner you are.

FOR EXERCISE PARTNER

1. It’s time to get your BP up, run as fast as you can to see the best results.
   1. SPRINT 4 reps of the stairway
   2. do 20 jumping jacks as FAST AS YOU CAN
2. Find your BP again 🡪 record this value in the table below under “After Exercise”

FOR THE WATER INTAKE PARTNER

1. Fill up your water bottle at the water fountain
2. have a big drink 🡪 drink as much of it as you can (try to finish at least half of it)
3. It’s time to wait. Wait until after your partner has completed their exercise and has recorded their “After Exercise” BP. Try to not go to the bathroom at this time.
4. Find your BP again 🡪 record this value in the table below under “After Water”
5. Note any observations you noticed in the table.

**DATA COLLECTION & OBSERVATIONS:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Before Exercise | After Exercise | Before Water | After Water |
| Blood Pressure |  |  |  |  |
| Observations: | | | | |

**QUESTIONS:**

1. What does the top number in the BP reading represent? What about the bottom number? Explain the difference between the two.
2. Where are valves found in the body? Select all that apply.
   1. arteries
   2. veins What do valves prevent?
   3. capillaries
   4. heart
   5. lungs
   6. there are no valves in the body.
3. Using what you have learned about homeostasis and blood pressure, draw the feedback loop for blood pressure regulation. Make sure you include all necessary parts (stimulus, receptor, control center, effector, response).

**EXTENSIONS:**

1. On the heart diagram below, label the different valves of the heart. What parts of the heart do they separate? **4 MARKS**

A picture containing indoor

Description automatically generated

1. When doing the activities, what changes should you have seen in yours or your partners BP? **1 MARK**
   1. Assume yours and your partners BP both increased. Why do you think blood pressure increased? Explain what was happening in the body during exercise AND with increased water intake that caused an increase in blood pressure. **5 MARKS**
   2. Assume blood pressure for you or your partner did not change due to exercise OR drinking water. Why could this be? **2 MARKS**
2. Using your findings from this activity, relate the effect exercise has on blood pressure to the process of homeostasis. HINT: think about it as a feedback loop. **5 MARKS**