The Effects of Exercise on Heart Rate and Cardiovascular Health

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**Introduction**

Cardiovascular health is the health of the heart and blood vessels. Heart rate is the speed at which your heart beats. Exercise is one of the many factors that have an impact the heart rate and cardiovascular health. People who exercise regularly are likely to have a healthier heart than people who do not exercise regularly. According to Johns Hopkins Medicine (2022), aerobic exercise and resistance training have the greatest benefit for preventing and managing heart diseases. It is recommended that you do a minimum of 30 minutes of aerobic exercise such as walking or cycling at least five days a week. Although exercise has many benefits alone, it is best to combine exercise and a healthy diet to see better results and have a healthier heart (John Hopkins Medicine, 2022). Aerobic exercise will improve blood circulation, resulting in a lower heart rate and blood pressure. Aerobic exercise can also help improve cardiac output. Combining aerobic exercise with resistance training can help raise HDL (good) cholesterol and lower LDL (bad) cholesterol.

The aim of this Investigation is to find out the effects of exercise on heart rate and heart health. It is hypothesized that the participants who exercise more regularly will have better heart health and a lower heart rate than the participants who do not exercise regularly. The independent variable of this investigation is whether the participants exercise regularly or not. The dependent variable of this investigation is the heart rate of the participants. The controlled variables are the age range of the participants, the participants resting before testing their heart rate, and the method of acquiring the data.

**Materials**

The materials required for this investigation are the participants, a stopwatch, and a calculator.

**Method**

1. Create a table and label the headings: participant, trial 1, trial 2, trial 3, average BPM, gender, and exercise (days/week).
2. Get your participant to be seated for five minutes before you start testing.
3. Place your index and middle finger on the pulse of the participant and count the heartbeats for 30 seconds
4. Multiply the result by 2 two get the beats per minute (BPM) and record the result
5. Repeat steps two to four two more times to find and record the average.
6. Record the gender and days of exercise of the participant.
7. Repeat steps two to six for all 25 participants.
8. Find the average beats per minute of each “days of exercise per week”.
9. Record these results and put them in a graph.

**Results**

The table with the participants, trials, average BPM, gender, and exercise (days/week) is shown in figure 1.1.

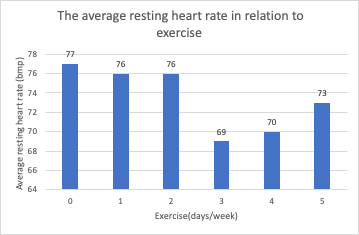
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Participants | Trial 1 | Trial 2 | Trial 3 | Average BPM | Gender | Exercise (days/week) |
|  | 50 | 44 | 50 | 48 | F | 3 |
|  | 54 | 52 | 50 | 52 | F | 1 |
|  | 96 | 88 | 86 | 90 | M | 1 |
|  | 66 | 62 | 72 | 67 | F | 0 |
|  | 76 | 72 | 68 | 72 | F | 4 |
|  | 70 | 72 | 68 | 70 | M | 2 |
|  | 76 | 70 | 70 | 72 | M | 2 |
|  | 82 | 72 | 78 | 77 | F | 0 |
|  | 94 | 102 | 100 | 99 | M | 5 |
|  | 50 | 45 | 72 | 56 | F | 5 |
|  | 66 | 77 | 70 | 71 | F | 4 |
|  | 80 | 80 | 80 | 80 | F | 3 |
|  | 86 | 84 | 80 | 83 | M | 0 |
|  | 71 | 72 | 74 | 72 | F | 3 |
|  | 66 | 68 | 66 | 67 | M | 4 |
|  | 84 | 80 | 68 | 77 | F | 0 |
|  | 70 | 74 | 72 | 72 | M | 3 |
|  | 60 | 68 | 64 | 64 | M | 5 |
|  | 81 | 76 | 79 | 79 | M | 0 |
|  | 84 | 81 | 83 | 83 | F | 2 |
|  | 68 | 66 | 71 | 68 | F | 4 |
|  | 68 | 66 | 72 | 69 | F | 3 |
|  | 71 | 75 | 77 | 74 | F | 3 |
|  | 85 | 83 | 88 | 85 | M | 1 |
|  | 76 | 80 | 79 | 78 | M | 2 |

*Figure 1.1*. Table showing the recorded data

|  |  |
| --- | --- |
| Exercise (days/week) | Average BPM |
| 0 | 77 |
| 1 | 76 |
| 2 | 76 |
| 3 | 69 |
| 4 | 70 |
| 5 | 73 |

*Figure 1.2*. Table showing the average heart rate (BPM) for each ‘days of exercise per week’.

Figure 1.3 is a graph showing the average heart rate in relation to exercise.



*Figure 1.3*. The average resting heart rate in relation to exercise.

**References**

3 Kinds of Exercise That Boost Heart Health. (2022). Retrieved 24 March 2022, from <https://www.hopkinsmedicine.org/health/wellness-and-prevention/3-kinds-of-exercise-that-boost-heart-health>

Exercise and the Heart. (2022). Retrieved 24 March 2022, from <https://www.hopkinsmedicine.org/health/wellness-and-prevention/exercise-and-the-heart#:~:text=Improves%20the%20muscles'%20ability%20to,rate%20and%20lower%20blood%20pressure>