Cardiovascular Health

**Introduction**

The heart is one of most important organs in the human body that pumps blood throughout the circulatory system to provide the body with the required nutrients and oxygen needed to survive and maintain homeostasis. The aim of this investigation is to see the effects that exercise had on the heart and how exercising influences the efficiency in which the heart functions and pumps blood.

How efficiently the heart works is measured in heart rate (BPM). Heart rate can be defined as the number of times the heart beats per minute. Heart rate is based on the contractions of the ventricles in the lower chambers of the heart. A low resting heart rate is usually a sign of healthy cardiovascular health. Whereas a high resting heart rate is a sign that you have poor cardiovascular health. The heart can be affected by factors that change your heart health, some examples are lack of exercise, obesity and smoking. These negative factors reduce the amount of oxygen that gets into the blood which makes your heart rate increase to make up that oxygen debt.

A factor that affects heart rate and heart health is exercise/physical activity. exercise improves cardiovascular health as it exercises the cardiac muscles present in the heart. When the body participates in physical activity, the demand for oxygenated blood to the muscle’s increases, causing the heart to have more forceful contractions and a higher beats per minute (BPM) to meet the demand for oxygen. Over time, the heart’s contractions will increase in strength, causing it to pump and contract less to meet the demand of the body, thus making the overall resting heart rate lower. The opposite is a higher heart rate, which means the heart needs to pump more to meet oxygen demands, which is a sign of a low cardiovascular health.

**Hypothesis**

Subjects who exercise more will have a lower resting heart rate to the subject who exercise less frequently.

**Independent Variables:**

* The subject
* The amount of exercise

**Dependent Variables:**

* The heart rates of the subjects

**Controlled Variables:**

* **The subject heart rate must be resting**
* **Age**

**Materials and Method**

* **Stop watch / phone**
* **Subject**
* **Computer to record results**
* **Calculator**

**1.Find a pulse on the wrist or neck**

**2. count how many beats felt for thirty seconds then stop**

**3. times this number by two to find beats per minute (BPM)**

**4. add results in a table**

**5. calculate the average**

**6. write how many days a week exercised and if subject is male or female**

**Tables and graph**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Resting Heart rate (beats/minute) | | |  | GENDER |
| Subject | Exercise | 1 | 2 | 3 | Average | Gender |
| 1 | 5-6 | 52 | 50 | 48 | 50 | M |
| 2 | 5-6 | 50 | 45 | 72 | 55.55 | F |
| 3 | 3-4 | 66 | 70 | 70 | 68.69 | M |
| 4 | 3-4 | 80 | 80 | 80 | 80 | M |
| 5 | 3-4 | 80 | 82 | 86 | 84 | M |
| 6 | 1-2 | 70 | 72 | 68 | 70 | F |
| 7 | 1-2 | 76 | 70 | 70 | 72 | F |
| 8 | 3-4 | 66 | 68 | 66 | 67 | F |
| 9 | 1-2 | 66 | 62 | 72 | 67 | F |
| 10 | 3-4 | 76 | 72 | 68 | 72 | F |
| 11 | 1-2 | 82 | 72 | 78 | 77 | M |
| 12 | 1-2 | 96 | 88 | 86 | 90 | F |
| 13 | 1-2 | 78 | 76 | 78 | 77.3 | F |
| 14 | 1-2 | 54 | 52 | 50 | 53.33 | F |
| 15 | 3-4 | 50 | 50 | 44 | 48 | F |
| 16 | 3-4 | 71 | 72 | 74 | 72.33 | M |
| 17 | 3-4 | 71 | 71 | 71 | 71 | F |
| 18 | 3-4 | 80 | 79 | 78 | 79 | F |
| 19 | 3-4 | 81 | 82 | 78 | 80.33 | F |
| 20 | 5-6 | 71 | 67 | 69 | 69 | F |
| 21 | 5-6 | 65 | 64 | 66 | 65 | M |
| 22 | 3-4 | 80 | 80 | 80 | 80 | M |
| 23 | 1-2 | 85 | 90 | 83 | 86.67 | F |
| 24 | 5-6 | 60 | 60 | 63 | 61 | F |
| 25 | 5-6 | 59 | 60 | 63 | 60.67 | M |
| 26 | 1-2 | 80 | 83 | 82 | 81.67 | M |
| 27 | 1-2 | 80 | 80 | 80 | 80 | F |
| 28 | 3-4 | 70 | 77 | 76 | 74.33 | F |
| 29 | 5-6 | 60 | 61 | 62 | 61 | F |
| 30 | 5-6 | 60 | 60 | 58 | 59.33 | M |

|  |  |
| --- | --- |
| Days exercised per week | Average BPM |
| 1-2 | 83.89 |
| 3-4 | 73.05 |
| 5-6 | 60.19 |

A picture containing text, whiteboard

Description automatically generated