# Resting Heart Rate and Exercise

## Introduction

The cardiovascular (circulatory) system relates to the functioning of the heart and the way blood vessels move materials around the body. The circulation of materials is a very important process within the body that allows for cell requirements to be met through external links, this allows for normal bodily functions to take place (Newton, 2020).

Resting heart rate (RHR) is the number of times a person’s heart beats per minute when a person is at rest; this is best measured when a person is calm, relaxed, and preferably sitting or exerting the least energy (Heart Foundation, 2020). Resting heart rate is one indicator of cardiovascular health, the lower your resting heart rate the healthier your heart is as it means that your heart is more efficient and pumps more blood with each beat. Unhealthy hearts beat more quickly to compensate for the lack of efficiency. The normal, healthy range for resting heart rate is between 60 – 100 BPM for adults (Laskowski, 2020). There are many factors that influence RHR. These include, but are not limited to factors such as age, sex, body size, diet, and physical fitness.

In this report we will be investigating the effect of exercise and regular physical activity on resting heart rate and therefore cardiovascular health. Exercise is defined as physical activities that are “planned, structured, and repetitive”, carried out to sustain or improve health and fitness, or for the purpose of “conditioning the body” (Multiple sources, 2004). Exercise is a prominent factor affecting RHR, it is a known trend for athletes to have a lower resting heart rate. This is because typically during exercise more oxygen is needed so the heart will pump more blood per beat, strengthening the heart muscle (Chertoff, 2020).

**Hypothesis**

If you exercise more then your resting heart rate will be lower because fitter individuals tend to have healthier and stronger hearts, pumping more blood per beat.

**Variables**

Dependent: Resting Heart Rate (BPM)

Independent: Amount of exercise done

Controlled: age of subject, subjects were resting, method of acquiring data, etc.

**Materials**

- stopwatch/timer x1

- teenage participants (15 – 16 Y.O.) x25

**Method**

1. Create the table (subheadings from left to right): subject, exercise (days/week), resting heart rate beats per minute trials 1, 2, and 3, average BPM, sex
2. Place your finger on the pulse of the participant and begin timing.
3. Count the heart beats over 30 seconds.
4. Multiply the result acquired by 2 to attain the beats per minute (BPM) and record this result.
5. Do steps 1 through to 3 twice more and find the average of that participant’s BPM, record this result
6. Record the sex and “days of exercise per week” of that participant.
7. Do steps 2 through to 6 for all 25 participants.
8. Take the average of scores of each category of “days of exercise per week”
9. Record these results and graph it

**Results**

Table 1.1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Resting Heart Rate (beats/minute) | | |  |  |
| Subject | Exercise (days) | 1 | 2 | 3 | Average | Gender |
| 1 | 1 | 70 | 72 | 68 | 70 | F |
| 2 | 1 | 76 | 70 | 70 | 72 | F |
| 3 | 2 | 66 | 68 | 66 | 67 | F |
| 4 | 2 | 66 | 62 | 72 | 67 | F |
| 5 | 1 | 96 | 86 | 88 | 90 | F |
| 6 | 3 | 50 | 50 | 44 | 48 | F |
| 7 | 1 | 52 | 54 | 70 | 59 | F |
| 8 | 1 | 78 | 76 | 78 | 77 | F |
| 9 | 4 | 71 | 74 | 72 | 72 | M |
| 10 | 3 | 84 | 82 | 86 | 82 | M |
| 11 | 2 | 80 | 80 | 80 | 80 | M |
| 12 | 4 | 66 | 70 | 70 | 71 | M |
| 13 | 5+ | 94 | 102 | 100 | 99 | M |
| 14 | 4 | 76 | 72 | 68 | 72 | F |
| 15 | 0 | 82 | 78 | 72 | 77 | M |
| 16 | 5+ | 50 | 45 | 72 | 56 | F |
| 17 | 1 | 66 | 68 | 64 | 66 | F |
| 18 | 1 | 68 | 64 | 64 | 65 | F |
| 19 | 1 | 70 | 72 | 72 | 71 | F |
| 20 | 1 | 72 | 70 | 74 | 72 | F |
| 21 | 4 | 84 | 81 | 83 | 83 | F |
| 22 | 2 | 69 | 70 | 68 | 69 | F |
| 23 | 2 | 70 | 73 | 67 | 70 | M |
| 24 | 0 | 81 | 83 | 84 | 83 | F |
| 25 | 3 | 66 | 68 | 71 | 68 | M |

Table 1.2

|  |  |
| --- | --- |
| Exercise Group (days/week) | Average Resting Heart Rate (beats/minute) |
| 0 | 80 |
| 1 | 71 |
| 2 | 71 |
| 3 | 66 |
| 4 | 75 |
| 5+ | 78 |

Graph 1.2

# Bibliography

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