The Effect of Hours of Exercise on Cardiovascular health

**Introduction:**

Cardio-vascular health Cardiovascular health refers to the health of the heart and blood vessels. Cardio-vascular health is very important for not only teenagers but also adults. It is very important for determining cardio-vascular health as a slower heartrate will mean that the heart is more efficient, needing less beats and if the heartrate is fast then the hearts efficiency is less. Causing it to need to beat more frequently. The aim of this study is to find out how the amount of exercise a year 11 does affects their resting heartrate.

**Background Information:**

A teenager’s average heart beats per min is 60-100. Lower heart rate means the heart beats themselves are more efficient in delivering oxygen around the body. Exercise conditions the heart causing it to build a strong tolerance, this trains the beats to be more effective at pumping more blood. Leading it to beat less on average. Cardiovascular disease is a group of diseases of the heart and blood vessels, including coronary heart disease, stroke, heart failure, heart arrhythmias, and heart valve problems. exercise Improves the muscles' ability to pull oxygen out of the blood, reducing the need for the heart to pump more blood to the muscles therefore increasing efficiency in each beat.

**Hypothesis:**

It is hypothesised that the higher number of hours of exercise a year 11 has the lower heart rate the participant will have because the more exercise person does the more their heart is exercised and therefore trained to be more efficient, leading in a lower resting BPM.

**Variables:**

Independent:

The hours of exercise completed in a week.

Dependent:

Heartrate per minute.

Controlled:

Environment when measuring the heartrate, age, time of day, place of measurement of heartbeat.

**Materials**

Stopwatch

Chair

Paper

Pen

Book

Calculator

Laptop

Internet

**Method:**

Participants were first asked to sit down for at least 2 minutes, then for 30 seconds their heartbeats were counted then multiplied by 2 to find the beats per minutes. This was repeated 2 more times (three times per participant) to add all three together then divide by three to find the average of the heart beats per minute.

**Data**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Participant** | **Exercise** | **Test 1** | **Test 2** | **Test 3** | **Average** | **Sex** |
| **1** | **2-4** | **77** | **76** | **75** | **76** | **m** |
| **2** | **10-12** | **87** | **83** | **88** | **86** | **F** |
| **3** | **4-6** | **78** | **78** | **80** | **79** | **F** |
| **4** | **0-2** | **70** | **68** | **58** | **65** | **F** |
| **5** | **0-2** | **86** | **90** | **84** | **86** | **F** |
| **6** | **6-8** | **82** | **86** | **82** | **83** | **F** |
| **7** | **0-2** | **70** | **82** | **92** | **81** | **F** |
| **8** | **4-6** | **80** | **76** | **72** | **76** | **M** |
| **9** | **6-8** | **64** | **72** | **80** | **72** | **M** |
| **10** | **2-4** | **72** | **67** | **70** | **70** | **F** |
| **11** | **10-12** | **88** | **90** | **80** | **86** | **M** |
| **12** | **4-6** | **88** | **77** | **82** | **82** | **F** |
| **13** | **8-10** | **80** | **78** | **78** | **79** | **F** |
| **14** | **6-8** | **62** | **62** | **64** | **63** | **M** |
| **15** | **2-4** | **76** | **80** | **72** | **76** | **M** |
| **16** | **2-4** | **82** | **98** | **96** | **90** | **F** |
| **17** | **0-2** | **96** | **78** | **96** | **88** | **F** |
| **18** | **10-12** | **72** | **69** | **81** | **74** | **M** |
| **19** | **6-8** | **60** | **66** | **62** | **62** | **M** |
| **20** | **4-6** | **100** | **92** | **100** | **97** | **F** |
| **21** | **12-14** | **84** | **68** | **77** | **76** | **M** |
| **22** | **12-14** | **64** | **78** | **74** | **72** | **M** |
| **23** | **0-2** | **86** | **79** | **83** | **83** | **M** |
| **24** | **10-12** | **104** | **102** | **90** | **99** | **M** |

**Relative data**

|  |  |
| --- | --- |
| **Hours of exercise per week** | **Average heart rate** |
| **0-2** | **81** |
| **2-4** | **78** |
| **4-6** | **84** |
| **6-8** | **70** |
| **8-10** | **79** |
| **10-12** | **86** |
| **12-14** | **74** |

**Final graph containing the average heart rate per hours of exercise done submitted in person.**

**References**

[**https://www.hopkinsmedicine.org/health/wellness-and-prevention/exercise-and-the-heart#:~:text=Additional%20benefits%20of%20exercise%3A,rate%20and%20lower%20blood%20pressure**](https://www.hopkinsmedicine.org/health/wellness-and-prevention/exercise-and-the-heart#:~:text=Additional%20benefits%20of%20exercise%3A,rate%20and%20lower%20blood%20pressure)