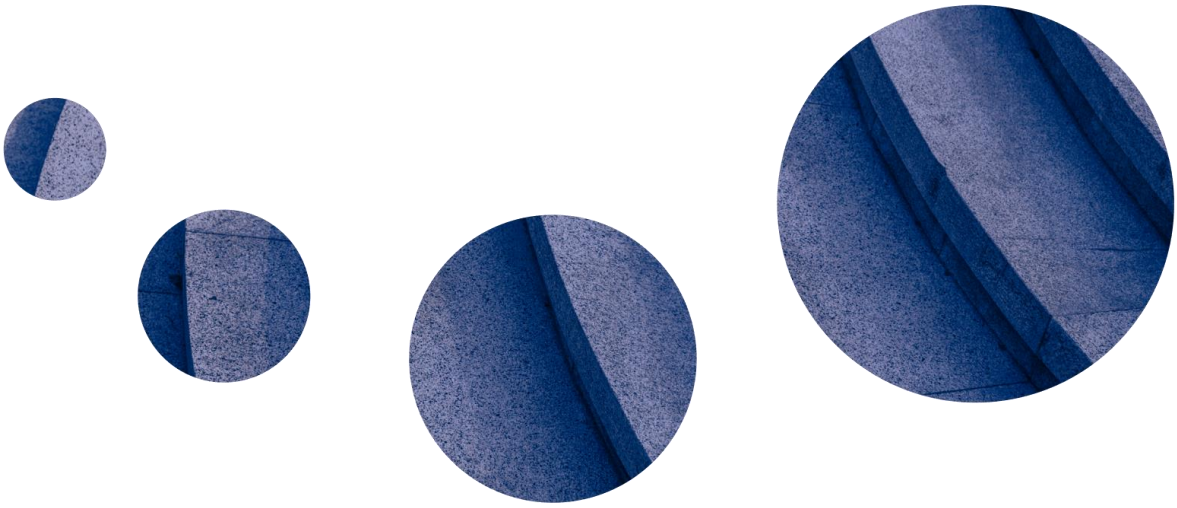

Human Biology

Cardiovascular Health

Introduction

The heart is a significant part of the body that aids in pumping blood all around the body; the heart muscle is a particular type of muscle that has its own category known as the "Cardiac Muscle." The Cardiac Muscle pumps blood that contains red blood cells rich in oxygen to every muscle, from the tips of fingers to the ends of toes. The heart must be cared for with daily exercise and healthy diets, as a healthy heart is crucial for the survival of any human being and the means of leading a healthy lifestyle. The 'Cardiac Muscle' is a muscle that must be worked. When the heart is not worked enough, dire consequences can lead to severe myocardium diseases. Furthermore, unhealthy habits such as consuming unhealthy or highly processed foods cause the heart to strain and pump harder; this will be discussed further in the report.

This task explores how exercise affects the heart capabilities of teenagers and how physical exertion can influence how a teenager's heart works. The experiment was conducted by measuring the heart rates of teenagers categorised from hourly exercise that each person did.

Research

The research is conducted by measuring an individual teenager's heart rate. The heart rate is the number of beats or pumps the heart makes, typically in a minute. An average healthy resting heart range is 60 to 100 beats per minute (BPM). Doctors use specific equipment to analyse the heart rate, such as a stethoscope or heart rate monitor. Such items are not available; alternatively, heart rate can be measured by recording the pulse on the wrist or neck and counting to thirty seconds, then doubling to get the beats per minute. The heart is divided into two upper left and right atrium and two lower left and right ventricles. Oxygen to rich blood pumped through the left ventricle goes to the aorta to be transported to the rest of the body. A healthy heart means the rate of beats must be low since the heart will not have to work as hard to pump the oxygenated blood to the rest of the body; likewise, an unhealthy heart means that the heart will have to pump harder and more often to get the blood containing necessary oxygen to all parts of the body. Lifestyle choices highly affect the heart's health since unhealthy habits such as smoking, low physical activity, and high BMI can negatively affect the heart. In addition, having a healthy lifestyle, including eating healthy, exercising regularly, staying within average BMI level, and not taking harmful drugs or smoking, will positively affect the heart. When the heart muscle is subject to increased physical activity, it must pump harder and faster to make the oxygenated blood to the muscles that demand it. Regular exercise progressively makes the heart muscle increasingly durable, thus reducing the general heart rate when resting.

Hypothesis

Participants who exercise frequently have lower resting heart rates than those who do not.

Variables

Controlled Variables

- Age of participants
- Resting heart rate

Dependent Variable

- Heart rates measured from participants

Independent Variable

- Gender of participants
- Hours of exercise done by participants

Materials

- Calculator
- Paper or computer to record data
- 20 Subjects
- Timer or Phone

Methods

1)
2) Check for pulse in either wrist or neck and set timer to 30 seconds
3) Set timer off and count number of pulses felt
4) Record data and repeat two more times (three times total)
5) Calculate the average
6) Sort data into male and female as well as hours of exercise

Results

		Resting Heart rate (beats/min)				**GENDER**
Subject	Exercise	1	2	3	Average	Gender
1	5 to 6	52	50	48	50	M
2	5 to 6	50	45	72	55.55	F

3	3 to 4	66	70	70	68.69	M
4	3 to 4	80	80	80	80	M
5	3 to 4	80	82	86	84	M
6	1 to 2	70	72	68	70	F
7	1 to 2	76	70	70	72	F
8	3 to 4	66	68	66	67	F
9	1 to 2	66	62	72	67	F
10	3 to 4	76	72	68	72	F
11	1 to 2	82	72	78	77	M
12	1 to 2	96	88	86	90	F
13	1 to 2	78	76	78	77.3	F
14	1 to 2	54	52	50	53.33	F
15	3 to 4	50	50	44	48	F
16	3 to 4	71	72	74	72.33	M
17	3 to 4	71	71	71	71	F
18	3 to 4	80	79	78	79	F
19	3 to 4	81	82	78	80.33	F
20	5 to 6	71	67	69	69	F
21	5 to 6	65	64	66	65	M
22	3 to 4	80	80	80	80	M
23	1 to 2	85	90	83	86.67	F
24	5 to 6	60	60	63	61	F
25	5 to 6	59	60	63	60.67	M
26	1 to 2	80	83	82	81.67	M
27	1 to 2	80	80	80	80	F

28	3 to 4	70	77	76	74.33	F
29	5 to 6	60	61	62	61	F
30	5 to 6	60	60	58	59.33	M

Averages