The comparison of normal and resting heart rate in Physical Education Students and non Physical Education Students

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Abstract

The Purpose of this study was to investigate the comparison of normal and resting heart rate in Physical Education Students and non Physical Education Students. The resting heart rate scores are significantly smaller as compared to Physical Education students and non Physical Education students. In general, higher you're resting heart rate the less physically fit and the lower the resting heart rate the greater physically fit year. (some athletes have resting heart rate in 40s and normal Heart Rate 60s) one way to see if your New workout is succeeding is to check your resting heart rate over a few months. See if it has increased, decreased, or remained the same. If your workouts are effective, your resting heart rate will slowly decrease, or at least remain consent. If your resting heart rate has increased, you should decrease your workouts frequency or intensity. The best time to find out your resting heart rate is in the morning, after a good night’s sleep, and before you get out of bed. Resting heart rate usually rises with the age, and its generally lower in physically fit people. It is used to determine one's training target heart rate. It helps to know if they are overstrained.

Keywords: Heart rate, Resting heart rate, Normal Electrical Pathway and Circulatory Systems.

Introduction

The heart is a muscular organ with four chambers designed to work efficiently, reliably, and continuously over a lifetime. The muscular walls of each chamber contract in a regulated sequence, pumping blood as required by the body while expending as little energy as possible during each heartbeat.

Contraction of the muscle fibers in the heart is controlled by electricity that flows through the heart in a precise manner along distinct pathways and at a controlled speed. The electrical current that begins each heartbeat originates in the heart’s pacemaker (sinus or senatorial node), located in the top of the upper right chamber (right atrium). The rate at which the pacemaker discharges the electrical current determines the heart rate. This rate is influenced by nerve impulses and by levels of certain hormones in the bloodstream.

The heart rate is regulated automatically by the automatic nervous, which consist of the sympathetic and parasympathetic divisions. The sympathetic division increases the heart rate through a network of nerves called the sympathetic plexus. The parasympathetic division decreases the heart rate through a single nerve, the vagus nerve. Heart rate is also influenced by hormones released into the bloodstream by the sympathetic division. Epinephrine (adrenaline) and nor epinephrine (noradrenaline) which increase the heart rate. Thyroid hormone, which is released into the bloodstream by the thyroid gland, also increases the heart rate.

In an adult at rest, the normal heart rate is usually between 60 and 100 beats per minute. However, lower rates may be normal in young adults, particularly those who are physically fit. A person’s heart rate varies normally in response to exercise and such stimuli as pain and anger. Heart rhythm is considered abnormal only when the heart rate is inappropriately fast (called tachycardia), slow (called bradycardia), or irregulars or when electrical impulses travel along abnormal pathways.

Statement of the Problem

The purpose of the study was to compare the normal and resting heart rate in Physical Education Students and non Physical Education Students.

Objectives of the Study

1) To study the difference between resting heart rate among Physical Education students and non Physical Education students.

Hypothesis:

1) It is Hypothesized that Physical Education and non Physical Education student.
2) It is hypothesized that Physical Education resting heart rate per min is less than non Physical Education students.

Significance of the Study:

1) This study will help the individual to know their fitness level.
2) This study will guide the coaches and Physical Education teachers to pickup physically fit students.
3) This study will help the sportsman to find out if they’re over trained.
4) This will help the coaches to give training.
5) This study will help the individual to know the importance of heart rate and sports.
6) The study will help non sportsman to known the fitness level.
Methodology

The purpose of the study was to compare the resting heart rate among Physical Education students and non-Physical Education students. The researcher adopted the descriptive research approach in the study. The data producing a sample consisted of 36 Physical Education student and 36 non Physical Education students. The data was collected on heart rate by using the heart rate instrument measurement of heart rate can be done by stethoscope, electrocardiogram and radio telemetric devise also.

The investigation personally approached and visited each 36 Physical Education students and 36 non Physical Education students. For collection of data on resting heart rate. The only one group is considered for the study is resting heart rate. A total 36 Physical Education student and 36 non Physical Education students were selected and resting heart rate. 36 students from Physical Education students and non Physical Education students resting heart rate was taken for one minute of this both subject (i.e. Physical Education student and non Physical Education students.) for 3 day early in the morning before they world get-up from the bed and average resting heart rate was taken resting heart rate was taken for one minute of both Physical Education students and non Physical Education students for 3 days at 7.00AM and average resting heart rate was taken. Measuring heart rate, Diagram

Collection of data

The investigator personally approached or visited each student for collection of data on resting heart rate. The only one group is considered for the study Physical Education students and non Physical Education students. A total of 36 students were selected each from both Physical Education students and non Physical Education students.

Data Analyses

Hypothesis: There is no significant difference between Physical Education students and non-Physical Education students with respect to their resting heart rate scores

To achieve this hypothesis, the unpaired t test was applied and the results are presented in the following table.

<table>
<thead>
<tr>
<th>Students</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>t-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>36</td>
<td>57.31</td>
<td>3.39</td>
<td>0.56</td>
<td>-18.6579</td>
<td>0.0001*</td>
</tr>
<tr>
<td>Non-Physical Education</td>
<td>36</td>
<td>70.19</td>
<td>2.39</td>
<td>0.40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<0.05

From the results of the above table, it can be seen that, a significant difference is observed between Physical Education students and non-Physical Education students with respect to their resting heart rate scores (t=-18.6579, p<0.05) at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the Physical Education students have significant smaller resting heart rate scores as compared to Non-Physical Education students. The mean and SD scores of resting heart rate is also presented in the following figure.

Hypothesis: There is no association between levels of resting heart rate of Physical Education students and non-Physical Education students
To achieve this hypothesis, the chi-square test for association test was applied and the results are presented in the following table.

Table: Results of chi-square test between levels of resting heart rate of Physical Education students and non-Physical Education students

<table>
<thead>
<tr>
<th>Levels of resting heart rate</th>
<th>Physical Education students</th>
<th>%</th>
<th>Non-Physical Education Students</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low resting heart rate</td>
<td>35</td>
<td>97.22</td>
<td>0</td>
<td>0.00</td>
<td>35</td>
</tr>
<tr>
<td>High resting heart rate</td>
<td>1</td>
<td>2.78</td>
<td>36</td>
<td>100.00</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>100.00</td>
<td>36</td>
<td>100.00</td>
<td>72</td>
</tr>
</tbody>
</table>

Chi-square with Yates's correction = 64.272  P = 0.0001

From the results of the above table, it can be seen that, 2.78% of Physical Education students and 100.00% of Non-Physical Education students have high resting heart rate and association found to be statistically significant at 5% level of significance (Chi-square= 64.272  P = 0.0001). The percentage of levels of resting heart rate among Physical Education students and non-Physical Education students are also presented in the following figure.

Conclusions:
1) The resting heart rate scores are significantly smaller as compared to Physical Education students and non Physical Education students.
In general, higher you’re resting heart rate the less physically fit and the lower the resting heart rate the greater physically fit year. (some athletes have resting heart rate in 40s and normal Heart Rate 60s) one way to see if your New workout is succeeding id to check your resting heart rate over a few months. See if it has increased, decreased, or remained the same. If your workouts are effective, your resting heart rate will slowly decrease, or at least remain consent. If your resting heart rate has increased, you should decrease your workouts frequency or intensity. The best time to find out your resting heart rate is in the morning, after a good night’s sleep, and before you get out of bed. Resting heart rate usually rises with the age, and its generally lower in physically fit people. It is used to determine one’s training target heart rate. It helps to know if they are overstrained.

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