

Effects on heart rate before and after exercise assignment



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The effect of exercise on heart rate Word Count THE EFFECT OF EXERCISE

ON HEART RATE Abstract -Aims - This study is to ascertain, if there is an effect on heart rate after exercise. This is being done to see, if there is a difference between resting heart rate and heart rate after performing exercise. Method and results - The study was compiled of seven female students from the University of Huddersfield. For the exercise a step was used, a polar heart rate monitor was used for each participant with an independent assessor timing the participants, and recording the readings.

Results of the study showed there was an increase in heart rate when performing mild exercise. Conclusion - Exercise has an effect on heart rate. This study showed there was an increase in all the participants.

Introduction) The area of study was based on exercise and heart rate, to establish whether there is an increase in heart rate after exercise. The hypothesis of the study was whether exercise will increase the heart rate therefore a null hypothesis would be that there will be no increase in heart rate.

Has health professionals we need to know what effect exercise can have on heart rate, in exercise the bodies demand for oxygen goes up which in turn raises the heart rate (Tortora et al, 2008). The heart shows how a body is functioning, in a healthy person the variability of the heart rate shows an increase or decrease dependant on the type of activity been performed (La Cruz et al, 2007 Literature Review There has been studies on the effect exercise has on heart rate. One of these studies (Shalnova. t al, 1995), this was a prevalence study, to determine the blood pressure, and heart rate response during exercise, in men and women in the USA, Canada and Russia

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lipid research clinics. The tests were carried out in Lip Research Clinics exclusively set up for the tests. The centres were based in the US, Canada and Russia. The Individuals selected were from a wide geographical area and socioeconomic backgrounds. Both male and female participants from an age range of 40 to 59 years were recruited. The study does not state, whether the same researchers were used in all the centres.

The majority of the tests were carried out in US test centres which shows the tests were more relevant to the US participants. The results show there was a difference, in resting heart rate and pre exercise blood pressure with lowest readings being from the Russian participants. The study took into account predisposing illness and conditions, and also some medications. Participants who had evidence of Cardio Vascular Disease, or who were receiving blood pressure medication were excluded from the study. Those who could not use a treadmill for at least one minute were also excluded.

The results show that there was a higher fitness level with the Russian men, however it also states this could be due to having a higher level of physical employment type rather than exercise. Another study showed the effect of heart rate during a stress test in obese patients (Gondoni et al, 2008). This showed the increase in heart rate in both obese and non obese patients. The participants were selected on the basis of BMI and training status. The participants were separated into groups one being classified as normal/overweight the second being unfit obese and the third being trained obese.

This study was carried out at San Giuseppe Hospital - Istituto Auxologico Italiano having been approved by the ethics committee of the hospital and each participant giving written consent. This study shows there was not a significant difference in the resting heart rate; however heart rate increased for all participants with the obese group having a marked difference in the heart rate during exercise. There has also been a study completed using the Chester step test (Roberts and Sykes, 2004) which is a simple but effective method of measuring aerobic capacity.

All the participants had different abilities and were healthy and free from medical conditions. They all volunteered and signed consent forms to participate. The results of this test show that it provides a valid test to estimate aerobic capacity and shows there is a small measurement of error. A polar heart rate monitor was used to measure the heart rate with a step of 30cm in height with a metronome with a beat at 15 steps, per minute and increased by 5 steps every minute for 5 stages or until 80% of the maximum estimated heart rate was reached.

The results demonstrated that the Chester Step technique is a valid predictor of aerobic capacity in males and females from a wide range of ages and fitness levels. The following study is to establish whether there is an increase in the heart rate of healthy female individuals. Methodology The method used for the study was quantitative, this was chosen rather than a qualitative as this deals with facts and figures and is an investigatory type of study. This can be either experimental or non experiment.

Experimental is the method used in this study which looks at cause and effect, and involves dependent and independent variables. (Balnaves and Caputi, 2001) A qualitative study can be described as interpretive which deals with personal thoughts and feelings (Flick, 2009). The participants for this study were recruited from the University of Huddersfield which consisted of seven female students. Ethical approval was not applied for or granted, however all information, and documented data was kept private and confidential. This was achieved by giving each participant a number and keeping their name away from all documented data.

All the participants were asked for, and gave verbal consent and they were informed that at any time they could withdraw from the study. The inclusion criteria for this study were all females between the ages of 19 to 44 who were fit and healthy. Anyone below 19 and over 44 were excluded from this study and also anyone who had difficulty using a step for exercise. As this study was for females males were also excluded. To establish the fitness of the participant they were verbally asked if they were fit, well and capable of carrying out a 5 minute step session.

All the participants gave their verbal consent to participant and confirmation of their fitness. To keep the method standardised all participants used a step 21cm high. An accurate record of the pulse rate was taken using a polar heart rate monitor with an independent assessor keeping a record of the results. The participants were asked to fit the polar heart rate monitor and to sit relaxed for 2 minutes the resting heart rate was taken, the participants were then asked to use the step for 5 minutes using the Borg scale at level 3 (Prasad and Pryor, 2002) the second reading for the heart rate was taken. <https://assignbuster.com/effects-on-heart-rate-before-and-after-exercise-assignment/>

After the post exercise reading the participants were asked to do some cool down exercises for 2 minutes to bring their heart rate slowly down to a normal reading. Results All data was calculated using the SPSS statistics data editor. As stated on the SPSSSTOOLS website (Levesque, 2008). A definition for SPSS is “ SPSS is a comprehensive system for analyzing data. SPSS can take data from almost any type of file and use them to generate tabulated reports, charts, and plots of distributions and trends, descriptive statistics, and complex statistical analysis (Levesque, 2008).

Descriptive Statistics The result of the study shows there is an increase in heart rate after exercise. The demographics of the participants are in table 1.

This shows the age, pre and post exercise heart rates and also the mean averages for all the participants. The participants had an age range of 19 to 44 with a mean age calculated at 27. 86. Table 1 Demographics of

Participants	Age	H/R Pre exercise	H/R Post exercise
1	39	73	143
2	30	73	143
3	23	85	120
4	19	86	113
5	44	67	132
6	19	77	127
7	21	80	129
Mean	27. 86	77. 29	129. 57

The mean difference for the increase in heart rate is 52. 29 shown in graph 1. The table also shows that two of the participants, had the same increase in heart rate after exercise [pic] Graph 1 Mean difference in the increase of heart rate after exercise The median heart rate pre exercise was 77. 9 and post exercise 129. 57 is shown in graph 2. Graph 2 also shows there is an increase in the heart rate after exercise. With a standard deviation pre exercise of 6. 897 and post exercise of 11. 103 showing that post exercise has a greater range. [pic] Graph 2 Standard deviations in heart rate

Inferential Statistics As the descriptive statistics shows there is an increase in the heart rate after exercise a one -sample t-test was completed which shows there is a significant increase in heart rate after exercise The t-test shows there is a significant increase with the following results $T = 8.115$, $DF = 6$ and $P = 0.000$ which shows a significant increase.

Therefore this rejects the null hypothesis and accepts the hypothesis that there is an increase in heart rate after exercise. Discussion The results show, there is an increase in heart rate after exercise. Six out of the seven used the step in pairs using the Borg scale (Prasad and Pryor, 2002). The fitness levels of the participants were not established before the start of the test. Although the participants showed an increase in heart rate it does not take into account pre-existing fitness levels. A polar heart monitor was also used in the Chester step test (Roberts and Sykes, 2004) which this study was based; however a smaller step and exercise time was used.

This study was performed using a small number of participants who were all female and relatively fit and healthy. This shows there is more study needed on a larger population to include both male and female participants from a greater generalised population. It also needs more criteria which could include weight, normal exercise levels, whether they are smokers or not also, if they have any predisposing medical conditions which were not taken into account on this study. Conclusion The conclusion of this study, showed exercise increases the heart rate of individuals, how high the increase will depend on the fitness levels of each individual. As a result it agreed with the hypothesis of the study which was that exercise will increase the heart rate.

It also agreed with Tortora et al (2008) which say that exercise can have an effect on heart rate, in exercise the body's demand for oxygen goes up which in turn raises the heart rate (Tortora et al, 2008). Reflection In reflection the study could have been performed in a more controlled manner, as it was conducted in a room with other groups of people which contributed to it becoming extremely warm. Consideration was not taken into the use of the equipment beforehand so there may be some conflicts with the data taken with regard to the Polar heart monitor. References Balnaves, M. Caputi, P. (2001) Introduction to quantitative research. London: Sage publications. Cruz, LA.

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and analysis of subject area knowledge | | | well structured assignment that addresses the learning outcomes and specific criteria for the module | | | critical understanding/application is evident through systematic, relevant and comprehensive coverage of content | | | clearly communicated in a style appropriate to the assessment brief | | | accurate and consistent use of a recognised referencing system | | | wide range of appropriate sources | | 80+ | Exceptional demonstration of scholarly application / critical understanding of subject area knowledge | | | well structured assignment that addresses the learning outcomes and specific criteria for the module | | | critical understanding/application is evident through systematic, relevant and comprehensive coverage of content | | | clearly communicated in a style appropriate to the assessment brief | | | accurate and consistent use of a recognised referencing system | | | wide range of appropriate sources | | 70+ | Excellent demonstration of scholarly application / critical understanding of subject area knowledge | | | well structured assignment that addresses the learning outcomes and specific criteria for the module | | | critical understanding/application is evident through systematic and relevant coverage of content | | | clearly communicated in a style appropriate to the assessment brief | | | accurate and predominately consistent use of a recognised referencing system | | | wide range of appropriate sources | | 60+ | Very good demonstration of scholarly application / critical understanding of subject area knowledge | | | well structured assignment that addresses the learning outcomes and specific criteria for the module | | | critical understanding/application is generally evident in the coverage of content | | | clearly communicated in a style appropriate to the assessment brief | | | predominantly consistent and generally accurate use of a recognised

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referencing system | | | good range of appropriate sources | | 50+ | Good demonstration of scholarly application / critical understanding of subject area knowledge | | | fairly well structured assignment that addresses the learning outcomes and specific criteria for the module | | | some critical understanding/application is evident through coverage of content which is also descriptive | | | good communication in a style appropriate to the assessment brief | | | predominantly consistent and generally accurate use of a recognised referencing system | | a range of appropriate sources | | 40+ | Adequate demonstration of scholarly application / critical understanding of subject area knowledge | | | adequately structured assignment that addresses the learning outcomes and specific criteria for the module | | | largely descriptive with some critical understanding/application evident through coverage of content | | | communicates in a style appropriate to the assessment brief | | | attempts to use a recognised referencing system but may have occasional systematic errors | | | a limited selection of appropriate sources | | 30+ | Limited demonstration of scholarly application / critical understanding of subject area knowledge | | | poorly structured assignment that does not completely address the module learning outcomes and specific criteria | | | work is descriptive in its coverage of the content | | | poor communication that does not use a style appropriate to the assessment brief | | | use of recognised referencing system is systematically inaccurate throughout the document | | | an insufficient range of appropriate sources | | 10+ | poorly structured assignment that does not address the module learning outcomes and specific criteria | | | coverage of the content is inadequate or incomplete | | | poor communication that does not use a style appropriate to the assessment brief | | | recognised referencing system is not

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used | | | sources are very limited or absent, or over reliance on one or two sources | | 0+ | Poorly structured assignment that does not address the learning outcomes and specific criteria for the module |