

The effect of exercise on pulse rate

[Health & Medicine](#)



The Effect of Exercise on Pulse Rate Background of the Study The rationale for carrying out pulse measurement is to both heart rate and rhythm, since the heart pumps blood throughout the body, the rhythm with which this is done may be detected through the wrist, neck and upper arm. These body parts are particularly sensitive since they have an artery close to the skin surface. The pulse rate is conventionally measured in the number of beats per minute (bpm) and is said to be influenced by a diverse range of conditions, including exercise, fever, and stress among others.

The current study was designed to determine the effect of exercise on pulse rate.

Methodology

30 healthy individuals between 18-25 years old have been asked to participate in the study. They were chosen using purposive sampling, with each meeting the criteria for inclusion mentioned below. They were also asked to explicitly express their consent in participating and were likewise informed that they could decide to withdraw from being subjects at any point. Before participating, they were each asked to answer some questions that were used to screen their inclusion to the study. They were asked the following: 1) Do you have any illness now for which you are taking medication? 2) Do you have anemia? 2) Do you feel that you are under extreme stress lately? 3) Do you take any of the following: caffeine, amphetamines, decongestants, asthma medications, diet pills, and cigarettes? 3) Do you smoke? 4) Have you taken in caffeine within the last 24 hours? All subjects must be physically healthy, must not be subjected to extreme stress of late, a non-smoker and must not have taken any of the stimulants listed above to qualify as a subject for the study. Their body

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temperatures were also taken to ensure that they are not suffering from fever, which is yet another factor which affects pulse rate.

Procedure

Each subject was asked to stay relaxed in a room for 10 minutes, and their pulse rate was taken manually through the wrist. The exact procedure was adapted from [www. webmd. com](http://www.webmd.com).

Figure 1. Taking a pulse rate.

The researcher placed her index and middle finger over the underside of the opposite wrist. This is just below the base of the thumb. Using the flat portion of the fingers (instead of the tips), the researcher pressed steadily, with just enough pressure to allow detection of a pulse. The researcher was likewise careful not to use her thumb in taking the pulse of the subject as this might cause her to feel her own pulse rather than that of the other person. The number of beats per 30 second was counted, and this number was doubled to arrive at the desired measure of beats per minute (see Figure 1 above).

After this procedure has been carried out for each of the 30 subjects, they were asked to jog inside the room for exactly 5 minutes. A stopwatch was used to measure the time of exercise. The subject was asked to sit down on a chair and the pulse rate was taken using the same procedure outlined above for measuring resting pulse rate.

The data were then encoded and analyzed through Microsoft Excel.

Variables in the Study

The factors that were held constant during the study were the conditions under which pulse measurements were done. Moreover, since the same

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subjects were used for pre and post pulse rate measurements, the effects of individual differences were somehow controlled (through such pre post test design). To ensure the control of extraneous variables, the subjects were asked screening questions to guarantee that all of them are healthy, are non-smokers, do not have fever, and have not taken stimulants before the session.

The variable that was varied was exercise. In the first condition, the subjects were all at rest, while in the second condition, they were asked to exercise. The latter was the variable modified between conditions.

The variables that may be extraneous was the physical fitness of the subject. While each one was healthy because they did not have any apparent illness for which they were taking medication, those who were athletic may have manifested a different pulse rate compared to those who had sedentary lifestyles.

Results

The results (see Appendix A) show that the average resting pulse rate is 87.63 bpm, with a standard deviation of 6.35 bpm. On the other hand, the mean pulse rate after exercise is 134.00 bpm with a standard deviation of 10.36 bpm. The two groups' means were then compared through the t-test for matched samples using MS Excel. Table 1 shows the results of the analysis:

Table 1. T-test for resting pulse rate vs. exercise pulse rate.

Resting Pulse Rate

Exercise Pulse Rate

Mean

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87.63

134.00

Variance

40.31

107.24

Observations

30.00

30.00

Pearson Correlation

-0.09

Hypothesized Mean Difference

0.00

df

29.00

t Stat

-20.15

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