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Relationship on breath holding time and resting heart rate with selected physical fitness components of residential female students

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Abstract

The purpose of the study was to find out the relationship between RHR and BHT with selected physical fitness components of the residential females. Forty (40) residential female students were selected from the P.G.G.I.P.E, Banipur of West Bengal. The Age ranges of the subjects are 19-23 years. RHR was measured by count in one min. in the early morning, Breath holding time was taken by electronic stop watch in nearest 1 sec, Speed was measured by 50 yards dash in sec, Agility was measured by 4*10 yards shuttle run in sec. through stopwatch and Explosive Leg Strength was measured by Standing Broad Jump in cm. Mean, S.D. and coefficient of correlation was calculated for analysis, interpretation and discussion. A statistical calculation was conducted through SPSS and Excel Spread Sheet of Windows version 7 was used as statistical software. Statistical significance was fixed at 0.05% level of confidence. At the result shows that there was no significantly relationship found in among the variables in respect of the subjects selected of the residential females.

Keywords: RHR, breath holding time, physical fitness variables and residential females

1. Introduction

Breath-holding ability becomes extremely important in some sports. The ability to hold your breath for a long period of time is a much sought-after skill. It is actually surprisingly easy to increase the amount of time you can go without breathing, provided you use the right training techniques and follow adequate safety precautions. In general terms the resting heart rate of a person is a strong indicator of that person's basic level of fitness. The strength of the heart can be measured simply by taking the resting heart rate into account. A strong heart can pump more blood each contraction, meaning that a strong heart needs to beat less times per minute than a weak one in order for the body to have adequate blood flow. Thus, those who have a high resting heart rate do not have a sufficient level of fitness

A normal resting heart rate can range anywhere from 40 to 100 beats per minute? But higher RHR and a greater change in RHR on changing the posture point towards an altered autonomic balance in OB group of young adolescent males. This underscores the need to implement health education program to combat obesity at school and college levels. (Y. Talay, 2010). Physical fitness is a general state of health and well-being and, more specifically, the ability to perform aspects of sports or occupations. It is generally achieved through correct nutrition, moderate-vigorous physical activity, exercise and rest. Physical fitness is a state of physiologic wellbeing that is achieved through a combination of good diet, regular physical exercise, and other practices that promote good health.

Researchers have shown his interest to find out the relation of RHR, Breath holding time with selected physical components because performance is depends on physical fitness components on other hand physical fitness variables is depends upon physiological performance but is there any relation with both of the variables? With such background researcher was to find out the relation between the RHR, Breath holding time with selected physical variables of the residential females.

1.1 Purpose of the Study

The purpose of the present study was to find out the relation of RHR and Breath holding time with selected fitness components (speed, agility & Explosive leg strength) of residential females.

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2. Methods & Materials

Forty (40) residential female students were selected from the P.G.G.I.P.E, Banipur of West Bengal. The Age ranges of the subjects are 19-23 years. RHR was measured by count in one min. in the early morning, Breath holding time was taken by electronic stop watch in nearest 1 sec, Speed was measured by 50 yards dash in sec, Agility was measured by 4*10 yards shuttle run in sec. through stopwatch and Explosive Leg Strength was measured by Standing Broad Jump in cm. Data was collected by the researcher himself with an supporting expert in a day starting from morning. The subjects were oriented about the purpose well in advance. The subjects were tested one by one. Mean, S.D. and coefficient of correlation was calculated for analysis, interpretation and discussion. Statistical calculation was conducted through SPSS and Excel Spread Sheet of Windows version 7 was used as statistical software. Statistical significance was fixed at 0.05% level of confidence.

3. Result

Table 1: Representing Mean and S.D. of selected variables of the Subjects

Variables	Mean	Std. Deviation	N
RHR	60.5	9.47	40
Breath holding time	41.05	15.83	40
Speed	7.73	0.46	40
Agility	11.19	0.88	40
Explosive leg strength	1.79	0.19	40

From the table-1 it appears that the mean and SD value of RHR were 60.5 ± 9.47 times. Breath Holding Time was 41.05 ± 15.83 sec. Speed were 7.73 ± 0.46 sec. Agility was 11.19 ± 0.88 sec. and Explosive Leg Strength was 1.79 ± 0.19 cm respectively. The mean and S.D. value of all the selected variables of the subjects have been shown graphically (Figure – 1).

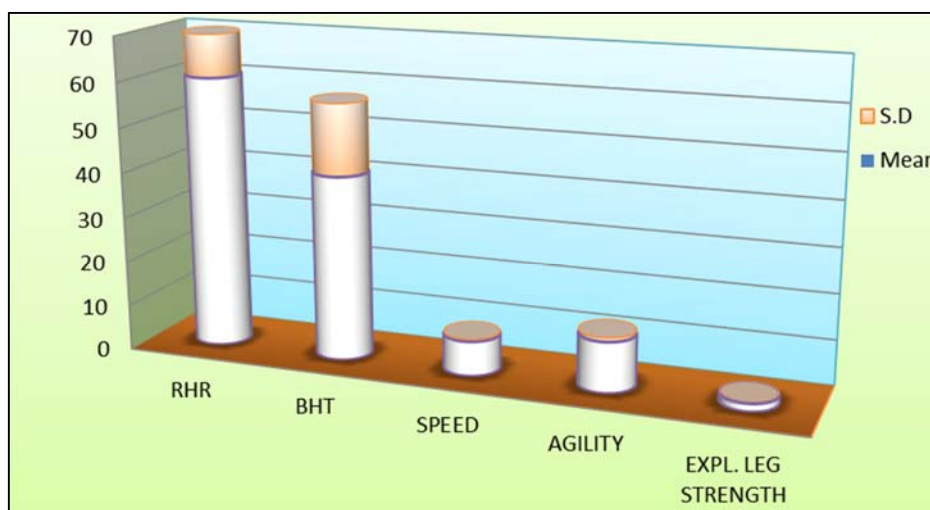


Fig 1: Graph Representing Mean & S.D Scores on Selected variables of the Subjects

Table 2: Representing Coefficient of Correlation of Resting Heart Rate with Breath Holding Time, speed, agility and Explosive Leg Strength of the selected subjects.

Variables	coefficient of correlation 'r'	
Resting Heart Rate	Breath Holding Time	0.087
	Speed	0.012
	Agility	0.011
	Explosive Leg Strength	0.065

Level of confidence significance at $r_{0.05(2,38)} = 0.257$

Table-2 represents the correlation value among the variables. It seems from the table-2 that the co-efficient of correlation value of RHR with Breath Holding Time was 0.087, The calculated 'r' value between RHR and speed was 0.012, RHR and agility value was 0.011 and the RHR and Explosive leg Strength value was 0.065 which are less than the tabulated value of $r_{0.05(2,38)} = 0.257$. So all of the scores are indicated no significant difference of the selected subjects.

Table 3: Representing Coefficient of Correlation of Breath Holding Time with speed, agility and Explosive Leg Strength of the selected subjects.

Variables	coefficient of correlation 'r'	
Breath Holding Time	Speed	-0.030
	Agility	0.215
	Explosive Leg Strength	-0.173

Level of confidence significant at $r_{0.05(2,38)} = 0.257$

Table-3 Shows the r value among the variables. It seems from the table-3 that the calculated 'r' value between Breath Holding Time and RHR was -0.03, Breath Holding Time and agility value was 0.215 and the Breath Holding Time and Explosive leg Strength value was -0.173 which are less than the tabulated value of $r_{0.05(2,38)} = 0.257$. So all of the

scores are indicated no significant difference of the selected subjects.

4. Discussion

The resting heart rate of the body is the number of contractions of the heart that occur in a single minute while

the body is at complete rest. This number will vary depending upon the age, gender, and general health of a person. Naturally resting heart rate of a person is a strong indicator of that person's basic level of fitness. But there was the result revealed no significance different between the reasons RHR with selected physical fitness components i.e. speed, agility and explosive leg strength on residential females. May be the reason of significant result due to the fact that number of small size of the subjects, samples error, health condition, life status, socio-economic status Food habit, climate condition also response of this result.

On other hand there was the result revealed no significance different between the reasons Breath holding time with selected physical fitness components i.e. speed, agility and explosive leg strength on residential females. May be due to the fact that all are the selected components are very well related to anaerobic type of activity that's why the result was revealed no significantly relation to each other. There may be another reason that such as age, sex, ethnicity, sedentary lifestyle and muscle mass can influence the no significant relationship between the parameter.

5. Conclusions

It may be concluded that

- There was no significantly relationship found between RHR and Speed, RHR and Agility and RHR and Explosive leg Strength of the residential females.
- There was no significantly relationship found between Breath Holding Time and speed, Breath Holding Time and Agility and Breath Holding Time and Explosive leg Strength in respect of the subjects selected.
- There were no significantly relationship found with RHR and Breath Holding Time in respect of the subjects selected.

6. Recommendations

It may be recommended that

- A study may be conducted with large number of subjects with a large number of populations.
- A study may be conducted with office working women and house wife in respect of physiological parameter.
- A comparative study may be conducted with the players and non-player's physiological and psychological parameter.
- A study may be conducted to observe the training effect on the relationship between Breath Holding Time with Physical fitness variables.
- A study may be conducted in the area to observe the same in relation to other factors related to the study.
- A study may be conducted on women in RHR with physiological, psychological and Health status in respect of daily life style.

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