



## Effect of Different Intensities of Resistance Training with Yogic Packages on Resting Pulse Rate and Breath Holding Time among Untrained College Students

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### Abstract

The purpose of the study is to find out the effect of varied intensities of resistance training with yoga practice on resting pulse rate and breath holding time among untrained college male students. To achieve the purpose of the present study forty five male students in the age group of 17 to 22 years from the SACD College of Engineering and Technology, Tirunelveli, Tamilnadu during the year 2018-2019 were selected as subjects at random from the total population of two hundred eighty four students. The age, height and weight of the subjects were ranged from 17 to 22 (mean  $\pm$  S.D. 19.3  $\pm$  0.8 years) years, 153 to 165 cms (mean height = 157 + 0.32 cms) and 55 to 69 kg (mean weight = 59.3 + 0.41 kg) respectively. They were divided into three groups, in which, Group - I (n=15) underwent low intensity resistance training with yoga practice, group - II (n=15) underwent medium intensity resistance training with yoga practice and group III (n=15) acted as control, who did not participate any special training apart from their regular routine activities. The subjects were tested on selected criterion variables such as resting pulse rate and breath holding time at prior to and immediately after the training period. For testing the resting pulse rate, Pulse rate per minute test was used and to test the breath holding time, holding the breath for maximum duration test was administered. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, between the experimental groups and control group on selected criterion variables separately. Since there were three groups involved in the present study, the Scheffé S test was used as post-hoc test. The result of the study shows that there was a significant improvement in resting pulse rate and breath holding time after the low intensity resistance training with yogic practice and medium intensity resistance training with yogic practice.

**Keywords:** Resistance training, yoga exercises, resting pulse rate, breath holding time.

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### Introduction

Resistance training is also known as training for strength development or weight training, has turn into one of the main popular forms of exercise for improving an individual's fitness and for conditioning athletes. The resistance training which contracts the muscle against an external resistance, causes increase in tone, strength, mass and muscular endurance or endurance. Some equipments like dumbbells, own body weight, rubber exercise tubing, weight training which enables the muscles to contract. There are varieties of resistance training which includes, medicine balls, weight machines, free weights, own body weight and resistance bands. Resistance exercise is in the form of resistance bands, weight machines, free-weights, and even own body weight of an athlete, which apply a load/overload to a particular muscle or group of muscle, and force the muscles to adapt and grow stronger. Yoga also described

as wisdom in skilful living or work amongst action, synchronization and control. Yoga is not for human being who attracts too much, nor for his/her who suffer himself/herself. It is not neither for sleep, nor for stays awake. By altering in taking food and taking rest, by regulating the work and by accordance in sleep and wake, yoga demolishing all pain and sorrows". An Indian's unique contribution to physical education is yoga. Both may be measured as to two bullocks hitched to shaft as they are for the well-judged combination of the education of the mind and the body.

### Methodology

The purpose of the study is to find out the effect of varied intensities of resistance training with yoga practice on resting pulse rate and breath holding time among untrained college male students. There would be significant positive alterations in resting pulse rate and breath holding time for both the low and medium intensity resistance exercise with yoga practice groups as compared to control group. To achieve the purpose of the present study forty five male students in the age group of 17 to 22 years from the SACD College of Engineering

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and Technology, Tirunelveli, Tamilnadu during the year 2018-2019 were selected as subjects at random from the total population of two hundred eighty four students. As these subjects were new to resistance training, they have cleared the minimum strength requirement test prescribed by Voight and Draovitch, which consists of five push-ups, five squat thrust, standing long jump and skipping rope for thirty seconds. All the subjects were residents of Tirunelveli, Tamilnadu and they had a similar programme of academic and regular activities in accordance with the college. The age, height and weight of the subjects were ranged from 17 to 22 (mean  $\pm$  S.D. 19.3  $\pm$  0.8 years) years, 153 to 165 cms (mean height = 157 + 0.32 cms) and 55 to 69 kg (mean weight = 59.3 + 0.41 kg) respectively. They were divided into three groups, in which, Group - I (n=15) underwent low intensity resistance training with yoga practice, group – II (n=15) underwent medium intensity resistance training with yoga practice and group III (n=15) acted as control, who did not participate any special training apart from their regular routine activities. The subjects were free to withdraw their consent in case they felt any discomfort

during the period of the training programme, but there were no dropouts in this study. The researcher along with the experts has selected the following variables as criterion variables:

Sl. No	Criterion Variables	Test items	Unit of Measurement
1.	Resting pulse rate	Pulse rate per minute	Numbers
2.	Breath holding time	Holding the breath for maximum duration	Seconds

**Analysis of data**

The data collected prior to and after the experimental periods on resting pulse rate and breath holding time on low and medium intensity resistance training with yoga practice and control group were analyzed and presented in the following table -I.

Table 1

*Analysis of covariance and 'f' ratio for resting pulse rate and breath holding time on low and medium intensity resistance training with yoga practice and control group*

Variable Name	Group Name	Experimental Group - I	Experimental Group- II	Control Group	F ratio
<b>Resting Pulse rate</b>	<b>Pre-test Mean <math>\pm</math> S.D</b>	69.27 $\pm$ 3.011	68.80 $\pm$ 2.31	69.47 $\pm$ 2.53	0.253
	<b>Post-test Mean <math>\pm</math> S.D.</b>	67.53 $\pm$ 3.044	66.87 $\pm$ 2.26	70.00 $\pm$ 1.89	6.82*
	<b>Adj. Post-test Mean <math>\pm</math> S.D.</b>	67.455	67.20	69.75	47.08*
<b>Breath holding time</b>	<b>Pre-test Mean <math>\pm</math> S.D</b>	22.40 $\pm$ 2.06	23.27 $\pm$ 1.94	22.87 $\pm$ 1.51	0.822
	<b>Post-test Mean <math>\pm</math> S.D.</b>	24.47 $\pm$ 2.00	25.87 $\pm$ 1.81	22.13 $\pm$ 1.73	15.65*
	<b>Adj. Post-test Mean <math>\pm</math> S.D.</b>	24.873	25.480	22.113	88.29*

Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 2 and 42 and 2 and 41 were 3.22 and 3.23 respectively).

(Experimental Group – I = Low Intensity Resistance Training with Yogic Practice Group

Experimental Group – II = Medium Intensity Resistance Training with Yogic Practice Group)

The obtained 'F' ratio value of 6.82 and 15.65 for post-test scores of low intensity resistance training with yogic practice, medium intensity resistance training with yogic practice and control groups was higher than the required table value of 3.22 for significance with df 2 and 42 at .05 level of confidence. The above statistical

analysis indicates that there was a significant improvement in resting pulse rate and breath holding time after the training periods. Further to determine which of the paired means has a significant improvement, Scheffé S test was applied. The result of the follow-up test is presented in Table 2.

Table 2  
Adjusted Post-test Mean of resting pulse rate

Adjusted Post-test Mean of resting pulse rate				
Experimental Group– I	Experimental Group – II	Control Group	Mean Difference	C I at .05 level
67.455		69.75	2.290*	0.739
67.455	67.20		0.255	0.739
	67.20	69.75	2.546*	0.739
Breath holding time				
24.873		22.113	2.760*	0.686
24.873	25.480		0.607	0.686
	25.480	22.113	3.367*	0.686

\*Significant at .05 level of Confidence.

(Experimental Group – I = Low Intensity Resistance Training with Yogic Practice Group  
Experimental Group – II = Medium Intensity Resistance Training with Yogic Practice Group)

### Conclusion

The result of the study shows that there was a significant improvement in resting pulse rate and breath holding time after the low intensity resistance training with yogic practice and medium intensity resistance training with yogic practice.

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