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Effect of Low Intensity Aerobic Training Programme on Breath Holding Capacity in 16 year and 22 year males

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Abstract

Objective: First objective of the present study was to to determine the level of Breath Holding Capacity in 16-22 years of degree college students of Bahadwar Vidya Mandi Degree College, Agra (Uttar Pradesh). Second objective of the present study was to to compare the experimental group and control group in Breath Holding Capacity. **Methods:** For the present study, A total of 40 subjects were selected for the present study. 10 randomly selected male belonging to different groups (two experimental and one control was selected for the present study selected with 10 week of training programme. **Results:** Significant mean difference was found the experimental group and the control groups in relation to breath holding capacity in both 16 and 22 years. **Conclusion:** Low intensity training programme is effective for improving the Breath Holding capacity in 16 and 22 years.

Key Words: Breath Holding Capacity, Low Level Aerobic Training Etc.

1. Introduction:

The evolution of fitness can be attributed to man's need for survival and can be traced back to the beginning of mankind. Primitive men (pre-10,000 B.C) needed to be fit and be able to go through their journey to hunt for food and water. Being nomads and hunters, the activities of this people required a lot of physical activity and fitness (their celebration events included trips of six to twenty miles to neighboring tribes to visit friends and family) Eaton, S.B., Shostak, M. & Konner, M. (1988). With the invention of the plow and other agricultural development (10,000-8,000 B.C) comes the beginning of a less active lifestyle. Neolithic men started using plow and animals to do the difficult tasks, thus decreasing the amount of physical activity (Garnsey, P., 1999). Performance sports mainly depends on physical fitness of an individual (Hardayal Singh, 1991) and further recent health guidelines suggesting that children should accumulate 60 minute of moderate-intensity physical activity every day, supplemented by regular activities that promote strength flexibility and bone strength(Boreham C.; Riddoch C).

2. Methodology:

For the present study, a total of 40 subjects were selected for the present study. 10 randomly selected male belonging to different groups (two experimental and one control was selected for the present study selected with 10 week of training programme.

2.1 Training programme:

Training programme was provided during morning hours to students in the college campus. Data was taken when they were not busy and have enough time to spare for testing. Necessary instructions were given to the subjects before the administration of each test. An utmost care, precaution and importance was given to administration of the selected Aerobic Training program. Prior to conduct of experimental Aerobic training programs Pre test in all the criterion variables on which the effect of aerobic program was to seen were tested for control and experimental group. Finally, after ten week post test data was taken. Pretest-Posttest Randomized-Group Design (Thomas & Nelson2001) was used for the present study.

2.2 Programme Schedule:

Days	Time		Warming Up		Experimental Group	Control Group
	Start	Finish				
Monday, Wednesday Friday	5.30 am	6.30 am	General Light Jogging	10 min.	Ergometer training programme	Normal Schedule

2.3 Collection of data:

For the collection of data the scholar first seek the permission from the Principal of the college. Then with the help of the Physical Education Teacher of the school, the scholar selected the entire student who felled in between the age group of 18 to 30 years. Once these procedure were over the scholar randomly selected the students who acted as the subjects of the study

2.4 Statistical Technique:

In order to test the hypothesis mean, standard devaition and Analysis of Co-variance was calculated was used at 0.05 level of significance

3. Result and Discussion:

Table 1 shows the results of the present study.

Table 1:
Analysis of Co-variance of the means of two experimental groups and one control group in relation to breath holding capacity in male of 16 years

(Male) 16 years								
Testing	**Group**	**Mean**	**Standard Deviation**		**Sum of Squares**	**df**	**Mean Square**	**F**
Pre	Experimental-A1	42.80	4.54	**Between Groups**	.800	1	.800	.071 (sig. .794)
	Control A-1	42.40	1.43	**Within Groups**	204.000	18	11.333	
Post	Experimental-A1	49.80	5.88	**Between Groups**	231.200	1	231.200	12.55 (Sig.002)
	Control A-1	43.00	1.49	**Within Groups**	331.600	18	18.422	
Adjusted	Experimental-A1	49.626	-	**Between Groups**	207.313	1	207.313	19.913 (sig.000)
	Control A-1	**43.174**	-	**Within Groups**	176.984	17	10.411	
* Significant at 0.05 level of significance, A =Among Means variance, W=With in Group variance F=Ratio needed for significance at 0.05 level of significance = df (1,18)= 4.41, df (1,17) = 4.45								

The analysis of co-variance for Breath Holding Capacity was insignificant in case of pre-test means from which it is clear that the pre-test mean does not differ significantly and that the random assignment of subjects to the experimental groups was quite successful. The post-test means of all the two groups yielded a F-ratio of 12.55 which was significant at 0.05 level of confidence. The difference between the adjusted post means was found significant as the obtained F-ratio was 19.913.The F-ratio needed for significance at 0.05 level of confidence was 4.45 at df (1, 17).

Table 2

Post Hoc Comparison of the means of two experimental groups and one control group in relation to breath holding capacity in male of 16 years

(I) groups	(J) groups	Mean Difference (I-J)	Std. Error	Sig.[b]
Experimental Group-A1	control group_A	6.452*	1.446	.000

The above table reveals that significant mean difference was found the experimental group and the control groups in relation to breath holding capacity.

Figure 1:

Graphical Representation of Experimental Group-A1 and control Group A in relation to breath holding capacity in male of 16 years

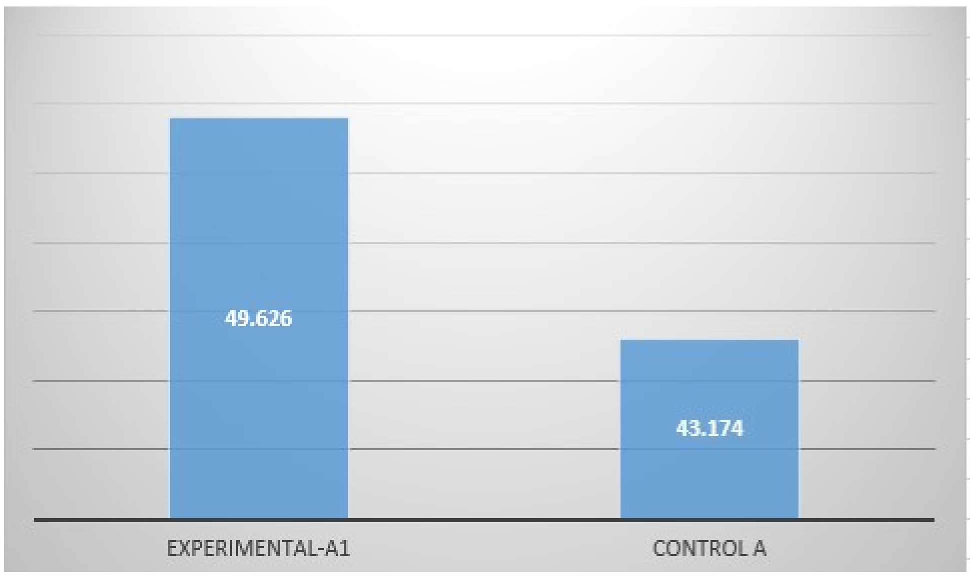


Table 3

Analysis of Co-variance of the means of two experimental groups and one control group in relation to breath holding capacity in male of 22 years

(Male) 22 years								
Testing	**Group**	**Mean**	**Standard Deviation**		**Sum of Squares**	**df**	**Mean Square**	**F**
Pre	Experimental-B1	43.00	1.33	**Between Groups**	4.050	1	4.050	1.874 .188
	Control B	42.10	1.60	**Within Groups**	38.900	18	2.161	
Post	Experimental-B1	48.50	2.95	**Between Groups**	198.450	1	198.450	38.785 .000
	Control B	42.20	1.23	**Within Groups**	92.100	18	5.117	
Adjusted	Experimental-B1	48.421	-	**Between Groups**	170.872	1	170.872	31.952 .000
	Control B	42.279	-	**Within Groups**	90.911	17	5.348	

* Significant at 0.05 level of significance, A =Among Means variance, W=With in Group variance
F=Ratio needed for significance at 0.05 level of significance = df (1,18)= 4.41, df (1,17) = 4.45

The analysis of co-variance for Breath Holding Capacity was insignificant in case of pre-test means from which it is clear that the pre-test mean does not differ significantly and that the random assignment of subjects to the experimental groups was quite successful. The post-test means of all the two groups yielded a F-ratio of 38.785 which was significant at 0.05 level of confidence. The difference between the adjusted post means was found significant as the obtained F-ratio was 31.952.The F-ratio needed for significance at 0.05 level of confidence was 4.45 at df (1,17).

Table 4

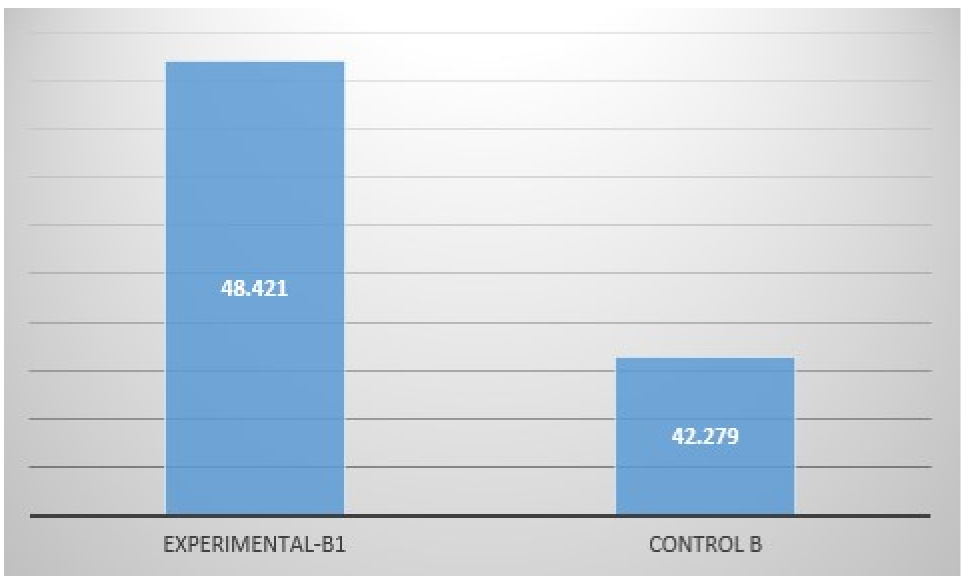
Post Hoc Comparisonof the means of two experimental groups and one control group in relation to breath holding capacity in male of 22 years

(I) groups	(J) groups	Mean Difference (I-J)	Std. Error	Sig.[b]
Experimental Group-B1	control group_B	6.143*	1.087	.000

The above table reveals that significant mean difference was found the experimental group and the control groups in relation to breath holding capacity.

Figure 2

Graphical Representation of Experimental Group-B1 and control Group B in relation to Breath Holding Capacity in male of 22 years



4. Conclusions:

Breathing rate, also known as a respiratory rate, is the number of breaths that take per minute at rest. Breathing rate is a general indicator of the health of person lungs and cardiovascular system. It changes very rapidly in response to excitement and stress, for example, during physical exercise. The normal breathing rate in a teenager is typically the same as adults, between 12 and 16 breaths per minute. As a child progresses from early to late teens, however, there should be a natural decrease in resting breathing rate. Breathing rate is a measurement of how well our lungs are delivering oxygen to our body. A normal breathing rate implies that are receiving adequate oxygen, lungs and heart are working well together. An abnormal breathing rate can either imply a normal change in oxygen requirement, such as during exercise or sleep, or it can represent a physiological problem. Resting respiratory rates tend to decrease as increase in age. Tracking breathing rate over time gives an accurate measurement of cardiovascular development. Additionally, measuring the increase in respiration rate during periods of exercise gives a good measurement of the body's response to cardiovascular stress. The various methods for improving endurance are basically of four types, Continuous method, Interval Method, Repetition methods, Competition method.Continuous method in which an exercise is done for long time without any break or pause. Because of the long duration of work, the intensity is low. The continuous method has four variations namely, Slow continuous method, fast continuous method, variable pace method & Fartlek method.Slow continuous method is the variation of the sportsman exercises at a certain speed without any pause for very long duration. Long cross country runs are typical examples of slow continuous method. In this method, the speed or pace of exercise is determined according to heart rate for trained athlete. The heart rate during the exercise should be from 140-160 beats per minute. The volume in terms of total duration should not be less than 30 minutes. In case of endurance athlete, can go up to 2 hours or even more. Cyclic activities like running, cycling, walking etc. are used for this method. Effects of slow continuous method, because of relatively low intensity and very high training volume, are merely limited to the muscles. Far reaching changes or adaptation takes place in muscle. Some of the most important changes are; increase in muscle glycogen and liver glycogen, increase in Capilliarisation, increase in the quantity of oxidative enzymes, increase in the number and size of mitochondria, better thermo-regulation and improvement in movement economy. In addition, it also positively affects fat metabolism for exercise, control and regulation of endurance activity, general resistance and so on. Shaer (1981) mentioned that the normal human being has 12-20 respirations per minute in resting condition. Moreover, during exercise, the respiratory rate may go up to a value of 50-60 breaths per minute. The lower of Resting Respiratory Rate might be due to the reason that due to ergometeric training programmes, changes might have occurred in lung volume, oxygen diffusion in the lungs but there was no significant difference in the Vital Capacity in the age category of 16 years. Similary no significant changes were found in the Oxygen intake leading to better oxygen utilization both at 16 years and 22 years of age. Moreover, the muscles used for inspiration, like the diaphragm, external and internal intercostals, scalene, strenocleidomastoid, extensor muscle, abdominal of the back and trapezius muscle, gets strengthened, as a result of which the maximum amount of air can be inspired /expired by using less effort. During exercise, the working muscles require a larger amount of oxygen but if there is lack of oxygen in the blood, and the arterial oxygen falls too low, then they are stimulated to send impulses to the medulla, where respiratory centers are stimulated to increase the rate and depth of breathing to fulfill the oxygen demand.

5. Conclusions:

Low intensity training programme is effective for improving the breath holding capacity in both the groups.

6. References:

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