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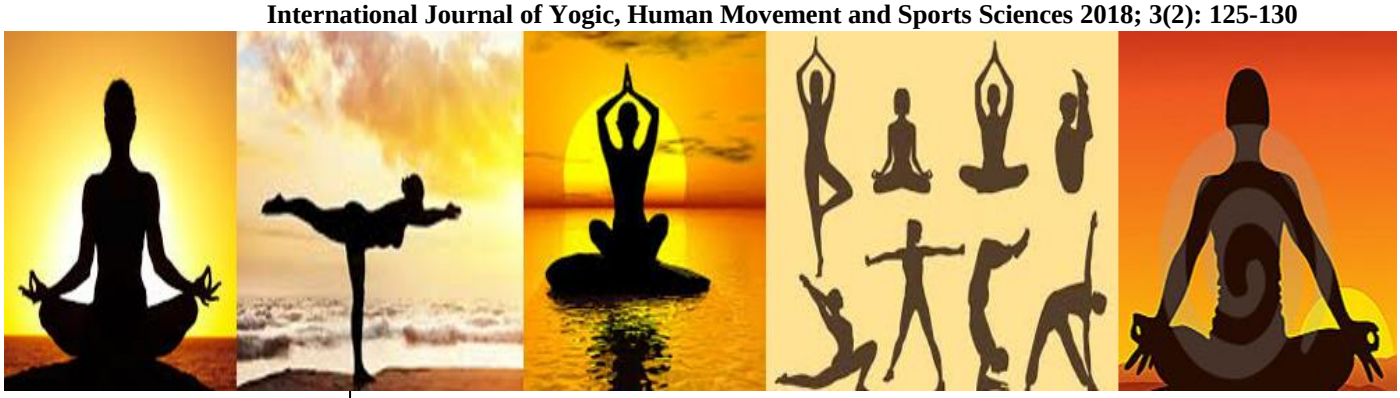

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Effect of swimming training on selected physiological variables of school going boys

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Abstract
The primary aim of the study was to determine the Effect of Treadmill Training on Selected Physiological Variables of School Going Children. For the purpose of the study 40 boys (20 for control group and 20 for experimental group) from Ramkrishna Krida Vidyalaya, Amravati, Maharashtra were selected as subjects, the age of the subjects was ranging from 12 to 15 years.
Physiological variables were delimited to pulse rate, maximum breath holding capacity and vital capacity.Pulse Rate was measured through Finger tips were put on radial artery and the pulse beats were counted for one minute and score was recorded in numbers. Maximum Breath Holding Capacity was measured through stop watch and score was recorded in seconds as well as vital capacity was measured through dry spirometer and score was recorded in mililiter.
The data were collected before the start of 6 weeks swimming training programme (pre test) and immediately after completion of 6 weeks swimming training programme (post test.) To determine the swimming training effect on selected physiological variables Independent and Dependent t-test statistical technique were employed. The level of significance was set at 0.05 to check the significant mean.
The findings of statistical analysis revealed that there was significant difference between the means of pre and posttest of Experimental group and posttest of Control and Experimental group for the variables of pulse rate, maximum breath holding capacity and vital capacity.

Keywords: Swimming Training, Pulse rate, Maximum Breath Holding Capacity and Vital Capacity.

Introduction
Swimming is a healthy workout that can be done for a lifetime. It is a low-impact workout that has several mental and bodily health benefits, and can be a recreational activity. Swimming builds endurance, muscle strength and cardiovascular fitness.
Kathryn Vera (2017) stated that swimming is a form of aerobic exercise that aids in the improvement of strength, flexibility, balance and co-ordination. According to the centers of diseases control and prevention, swimming has been found to be especially effective when it comes to promoting improvements in the cardiovascular system. In fact, swimming on a regular basis can improve heart contractility, decrease blood pressure, lower heart rate and improve lung efficiency. To achieve these results, swimmers should aim for 150 minutes of exercise each week.
Heart contractility refers to the ability of the cardiac muscle to squeeze and relax, thus pumping blood and oxygen from the heart to the other part of the body. As heart contractility improves, blood and oxygen supply increases, making it easier to perform everyday tasks. The American council on exercise reports that as with other forms of aerobic exercise, swimming is highly beneficial in improving heart contractility. As swimming is a non-weight bearing exercise, those with joint issues can tolerate higher-intensity water-based forms of activity and may be able to promote greater improvements in contractility.
Swimming is a low impact, aerobic exercise, meaning that it requires oxygen to meet the body's energy needs while helping to improve the cardiovascular system. Time to time research has been proved that swimming have a positive effect on the heart, blood and respiratory system, providing a wide ranging cardiovascular workout as well as improves performance and prevents injury in athletics. So research scholar was interested to take the study stated as Effect of Swimming Training on Selected Physiological Variables of School

Going Boys.

Significance of the Study

- The result of the study would help to know the status of the selected physiological variables of school going children.
- The findings of the study may help the coaches and teachers to know the effectiveness of swimming training for the improvement of selected physiological variables.
- The findings of the study would be helping the coaches to develop suitable swimming training programme where selected physiological variable are to be improved of school going boys.

Hypothesis

It was hypothesized that there would be significant effect of swimming on selected physiological variables of school going boys.

Material and Method

Subjects Selection

40 Boys of 12 to 15 years of age were selected randomly from Ramkrishna Krida Vidyalaya in Amravati, Maharastra as subjects for the purpose of the study.

Procedure

On the basis of Pre-test scores on selected variables 40 subjects were divided into two equated groups namely control group and other is experimental group. Experimental group was undergone 6 weeks swimming training whereas control group was not given any specific training but they continued with their regular activities.

Physiological variables were delimited to pulse rate, maximum breath holding capacity and vital capacity.

Pulse Rate was measured through Finger tips were put on radial artery and the pulse beats were counted for one minute and score was recorded in numbers. Maximum Breath Holding Capacity was measured through stop watch and score was recorded in seconds as well as vital capacity was measured through dry spirometer and score was recorded in mililiter.

6 Weeks Swimming Training Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
4 x 25 Meter	4 x 25 Meters Warm Up	4 x 25 Meters Warm Up	4 x 25 Meters Warm Up	4 x 25 Meters Warm Up	4 x 25 Meters Warm Up	Rest
5 x 25 Meters Free Style (Rest 15 Sec)	4 x 25 Meters Free Kick Style (Rest 10 Sec)	4 x 25 Meters Free Style Swim (Rest 10 Sec)	5 x 25 Meters Free Style Swim (Rest 15 Sec)	4 x 25 Meters Free Style Kick (Rest 10 Sec)	4 x 25 Meters Free Style Swim (Rest 10 Sec)	Rest
4 x 25 Meters Free Kick Style (Rest 10 Sec)	5 x 25 Meters Free Style (Rest 15 Sec)	4 x 25 Meters Free Kick Style (Rest 10 Sec)	4 x 25 Meters Free Kick Style (Rest 10 Sec)	5 x 25 Meters Free Style Swim (Rest 15 Sec)	4 x 25 Meters Free Kick Style (Rest 10 Sec)	Rest
4 x 25 Meters Free Style Swim (Rest 10 Sec)	4 x 25 Meters Free Kick Style (Rest 10 Sec)	5 x 25 Meters Free Style (Rest 15 Sec)	4 x 25 Meters Free Style Swim (Rest 10 Sec)	4 x 25 Meters Free Kick Style (Rest 10 Sec)	5 x 25 Meters Free Style (Rest 15 Sec)	Rest
100 Meters Cool Down	100 Meters Cool Down	100 Meters Cool Down	100 Meters Cool Down	100 Meters Cool Down	100 Meters Cool Down	Rest

Results and Discussion

To determine the significant difference among the pre and post test means of Experimental and Control group Dependent and Independent t-test Statistical techniques were employed separately for each selected variables. Level of significance was set at 0.05 for testing the hypothesis.

The findings are shown in the following tables –

Table 1: Description of Mean, Standard Deviation and t-ratio for the Data on Pulse Rate of Pre and Post Test of Control and Experimental Group

Control Group (pre-test)		Experimental Group (pre-test)		Control Group (post-test)		Experimental Group (post-test)		Mean difference	Standard error	't'-ratio
Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D			
76.85	2.23			77.20	1.98			0.35	2.05	0.717@
		76.80	0.85			70.20	1.27	6.60	0.54	12.22*
				77.20	1.98	70.20	1.27	7.00	1.43	4.90*

*Significant at 0.05 level Tabulated $t_{0.05\,(19)} = 2.09$ @ Not Significant at 0.05 level Tabulated $t_{0.05\,(38)} = 2.03$

Findings of table-1 reveal that there are significant mean differences between the mean of pre and post test of experimental group as well as post test of control and experimental group as calculated t- ratio value of 12.22 and 4.90 respectively are higher than the tabulated t-ratio value of 2.09 and 2.03 respectively at 0.05 level for 19 and 38 degrees of freedom respectively. It is also evident from table-1 that there is no significant difference between pre and post test of control group as calculated t-ratio value of 0.71 is less than the tabulated t-ratio value of 2.09 at 0.05 level for 19 degrees of freedom.

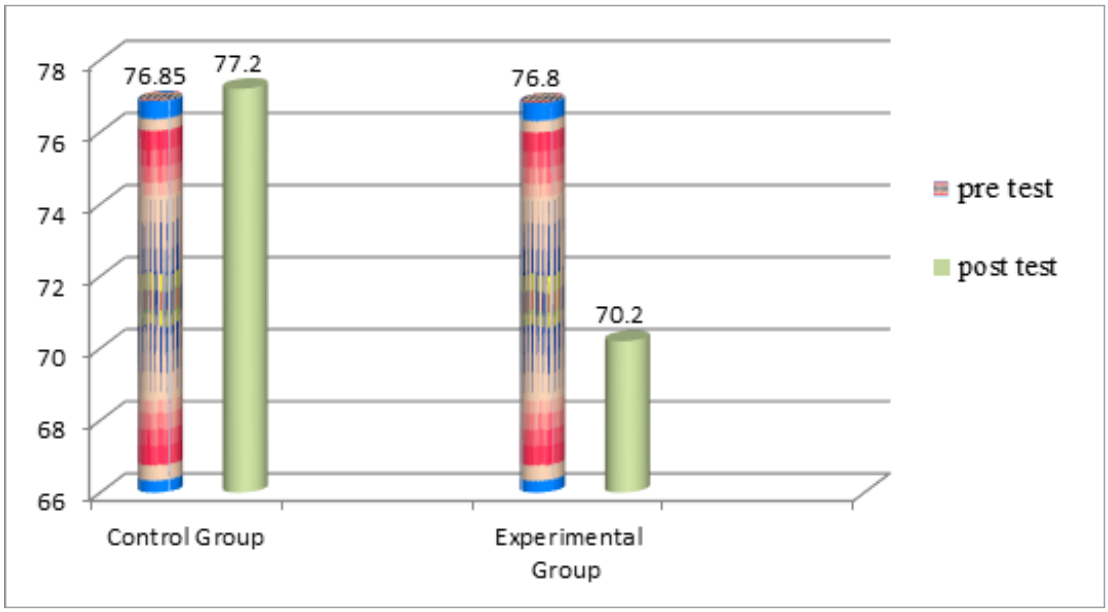


Fig 1: Pre & Post test data of Control &Experimental Group for Pulse Rate

Table 2: Description of Mean, Standard Deviation and t-ratio for the Data on Maximum Breath Holding Capacity of Pre and Post Test of Control and Experimental Group

Control Group (pre-test)		Experimental Group (pre-test)		Control Group (post-test)		Experimental Group (post-test)		Mean difference	Standard error	't'-ratio
Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D			
35.50	1.59			36.44	1.64			0.94	0.58	1.61@
		35.96	3.32			40.93	3.29	4.97	0.312	15.88*
				36.44	1.64	40.93	3.29	4.49	0.74	6.09*

*Significant at 0.05 level Tabulated $t_{0.05\,(19)}$ = 2.09 @ Not Significant at 0.05 level Tabulated $t_{0.05\,(38)}$ = 2.03

Findings of table-2 show that there are significant mean differences between the mean of pre and post test of experimental group as well as post test of control and experimental group as calculated t- ratio value of 15.88 and 6.09 respectively are higher than the tabulated t-ratio value of 2.09 and 2.03 respectively at 0.05 level for 19 and 38 degrees of freedom respectively. It is also evident from table-2 that there is no significant difference between pre and post test of control group as calculated t-ratio value of 1.61 is less than the tabulated t-ratio value of 2.09 at 0.05 level for 19 degrees of freedom.

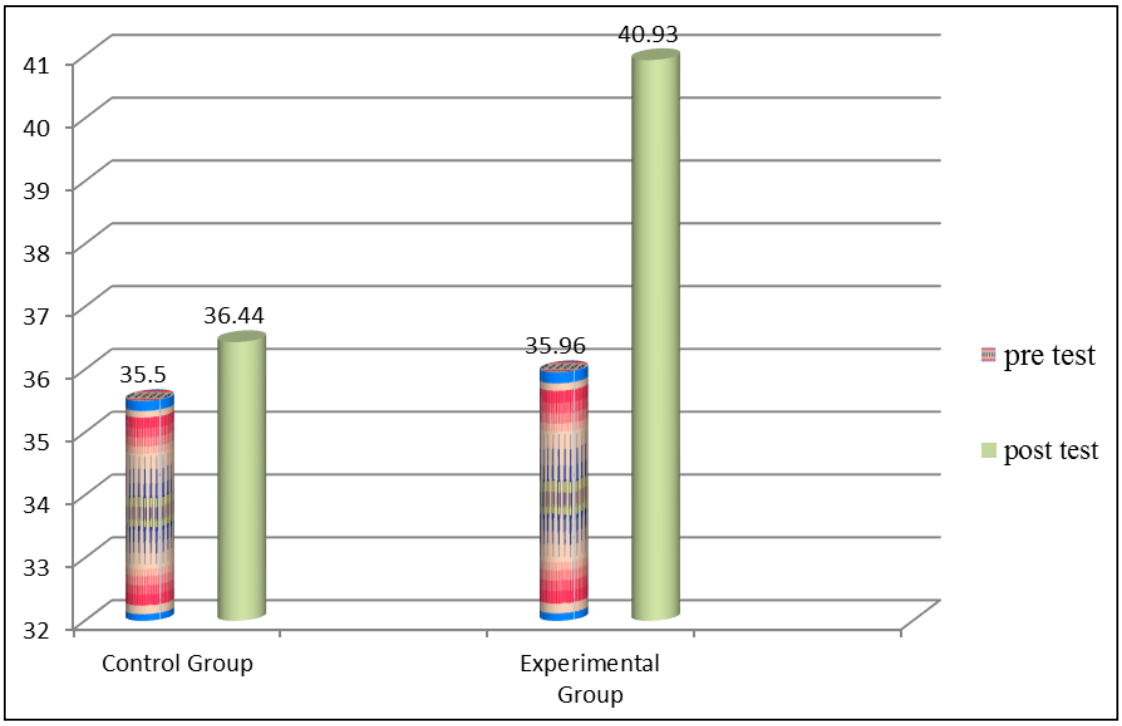


Fig 2: Pre & Post test data of Control &Experimental Group for Maximum Breath Holding Capacity

Table 3: Description of Mean, Standard Deviation and t-ratio for the Data on Vital Capacity of Pre and Post Test of Control and Experimental Group

Control Group (pre-test)		Experimental Group (pre-test)		Control Group (post-test)		Experimental Group (post-test)		Mean difference	Standard error	't'-ratio
Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D			
1840	183.85			1850	106.07			10	17.54	0.57@
		1840	183.85			2155	173.24	315	22.09	14.26*
				1850	106.07	2155	173.24	305	25.63	11.90*

*Significant at 0.05 level Tabulated $t_{0.05\,(19)} = 2.09$ @ Not Significant at 0.05 level Tabulated $t_{0.05\,(38)} = 2.03$

Findings of table-3 indicate that there are significant mean differences between the mean of pre and post test of experimental group as well as post test of control and experimental group as calculated t- ratio value of 14.26 and 11.90 respectively are higher than the tabulated t-ratio value of 2.09 and 2.03 respectively at 0.05 level for 19 and 38 degrees of freedom respectively. It is also evident from table-3 that there is no significant difference between pre and post test of control group as calculated t-ratio value of 0.57 is less than the tabulated t-ratio value of 2.09 at 0.05 level for 19 degrees of freedom.

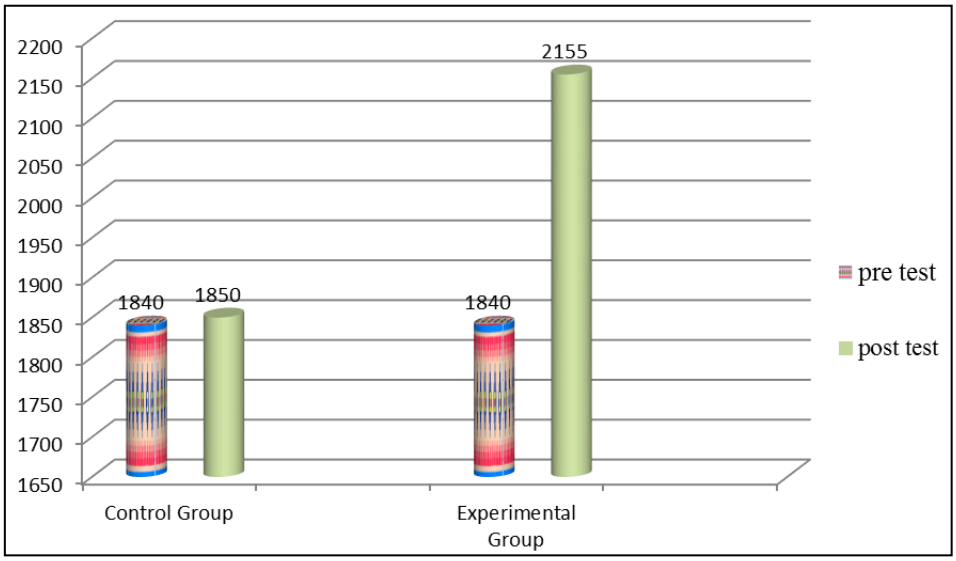


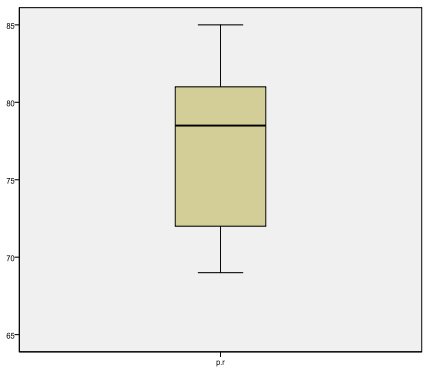
Fig 3: Pre & Post test data of Control &Experimental Group for Vital Capacity

Discussion

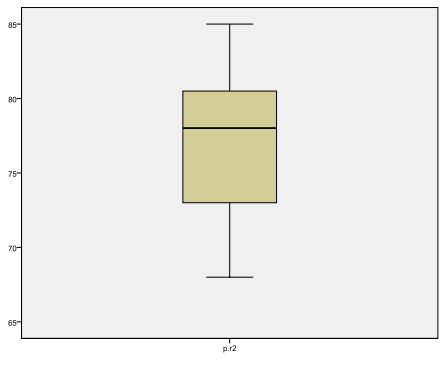
The findings of Table-1, Table-2 and Table-3 indicated that there were significant differences in Pulse Rate, Maximum Breath Holding Capacity and Vital Capacity between the means of pre and posttest of experimental group as well as posttests of experimental and control group. This signifies that due to 6 weeks of swimming training brought fruitful results within the subjects of experimental group. It may be attributed to the fact that swimming training was given to the boys with maximum volume that may leads to lungs and heart hypertrophy through which the following physiological changes might have occurred within subjects hence improvement was occurred among the subjects. There were increased capillaries around the muscle, oxygen uptake and intake capacity, lactic acid tolerance capacity of muscle, cardiac output and vital capacity.

Conclusion

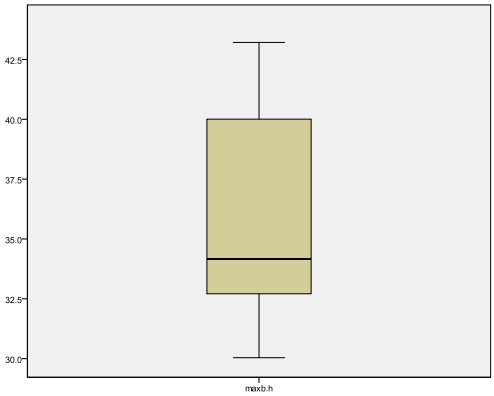
- Significant improvement was found in pulse rate due to systematic swimming training.
- Significant improvement was found in maximum breath holding capacity due to systematic swimming training.
- Significant improvement was found in vital capacity due to systematic swimming training.



Explore for the Data of Resting Pulse Rate of Pre Test of Control Group



Explore for the Data of Resting Pulse Rate of Post Test of Control Group



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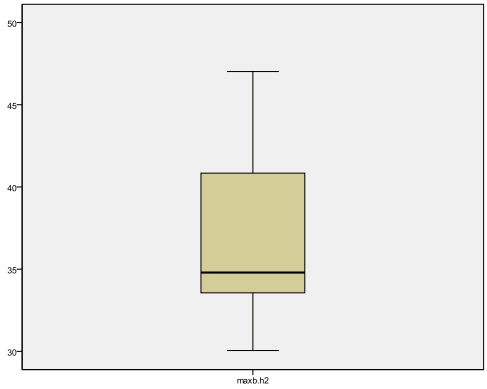

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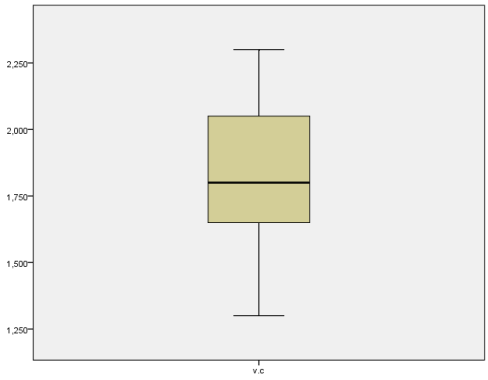

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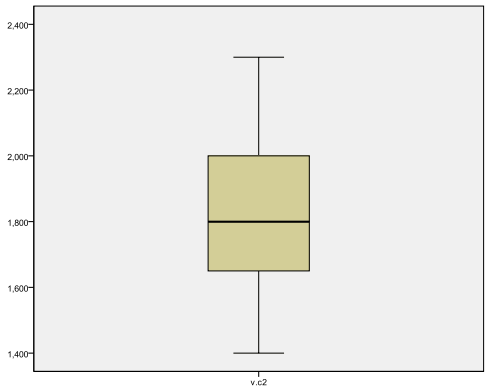

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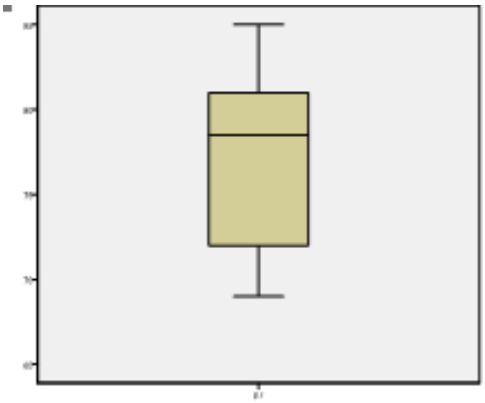

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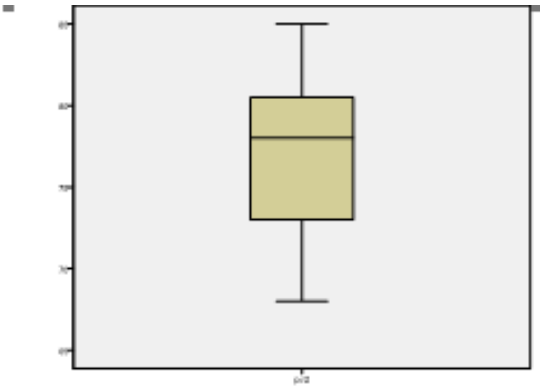

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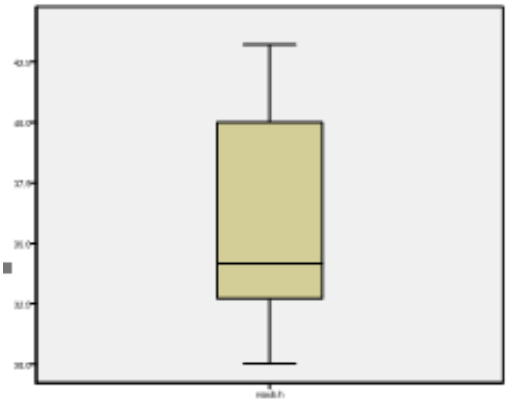

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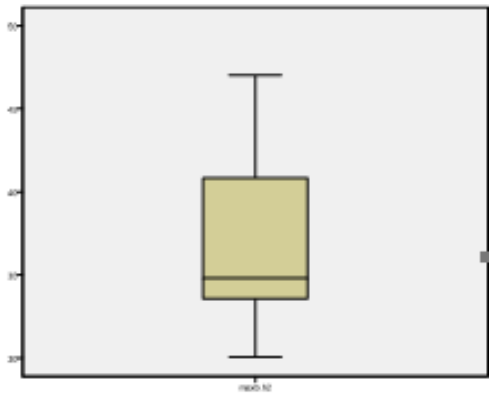

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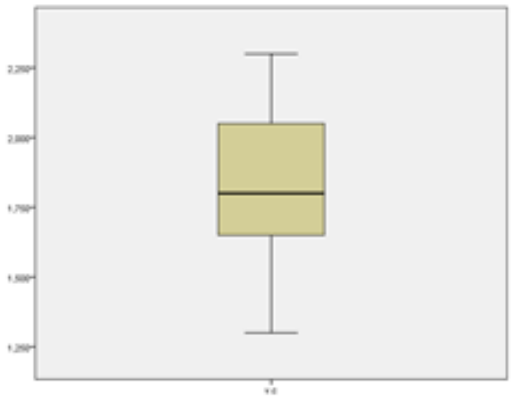

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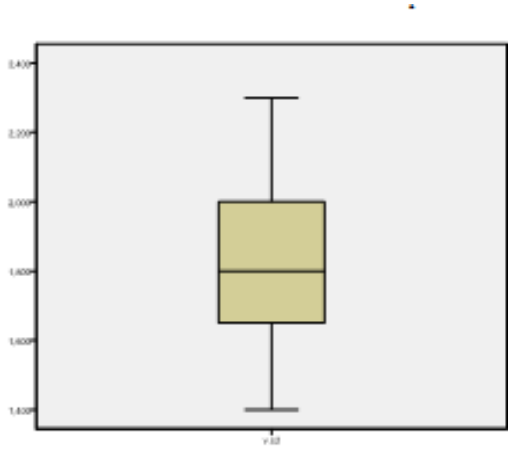

Explore for the Data of Vital Capacity of Post Test of Control Group

References

1. Anug W Htin. Importance of Qualified Trainess and Their Pre Requisite, Snipes Journal. 1982, 44.
2. Jain Deepak Teaching, Coaching Swimming. Delhi: Khel Sanity a Kendra 2000, 1-2.
3. Abraham George. Effect of Resistance Plyometric and Complex Training on Elastic Strength, International Journal of Health, Sports and Physical Education, 2013; 2(1).
4. Buchha Abhay N. Effect of Plyometrics Exercises on Cardio-Vascular Capacity and Playing Ability of Cricket Players, International Journal of Physical Education. 2014; 7(2):45-49.
5. Day L N. The Effect of There Selected Training Programme on the Running Speed, Completed Research Quarterly. 1989; 11(2):225.
6. Dennison JD, *et al*. Effect of Isometric and Isotonic Exercises Programmes Upon Muscular Endurance's Washington, A Department of National Education Association", Research Quarterly. 1932 3(2):4.
7. Maniazhagu D, *et al*. Effects of Aerobic Training and Circuit Training on Muscular Strength and Muscular Endurance", International Journal of Physical Education. 2011; 4(2):32-134.
8. Maniazhagu D. Effects of Concurrent Strength and Endurance Training on Muscular Strength Endurance", International Journal of Physical Education, Health and Sports Science. 2012; 1(1):2.
9. Muthuraj M, Singh Y. Wise Blessed, Effect of Concurrent Strength and Endurance Training and Detraining on Vital Capacity", International Journal of Physical Education. 2012; 4(1):81-85.
10. Richard, Bernes. The Effect of Weight Training and Running Programmes on Sprinting Speed", Research Quarterly. 1984; 6(1):53.
11. Shelvam PV, *et al*. Effect of Specific Exercise Programme on Selected Physical Fitness Variables among Volleyball Players, International Journal of Physical Education. 2013; 6(1):1-13.
12. Sisodiya Aman Singh, Abhinav. Effect of Plyometric Exercise, Circuit Training and Their Combined Effect on the Basketball Playing Ability, International Journal of Health, Sports and Physical Education. 2012; 1(1):28.
13. American Council on Exercise: Maka Splarr with water fitness.
14. CNN.Com: The benefits of Swimming.
15. https:// www.livestrong.com>Article>32.