

**Swimming Training and Its Effect on Cardio Pulmonary
Index Of Intercollegiate Badminton Players**

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Abstract

The key goal of the training was to examine the benefits of swimming drill on cardio pulmonary index of intercollegiate badminton players. For the test 30 students of DCPE, Amravati was randomly chosen as subject. Testees were from 18 to 25 years of age. Subjects underwent a training of 6 weeks. To measure the effect of training “Hyman’s Cardio pulmonary index i.e., Resting Pulse Rate and the score was listed down in second, Maximal Breath Holding Time and score was recorded in seconds,

Diastolic and Systolic Blood Pressure were assessed by using Stethoscope and the score was recorded in mmHg, Maximum expiration was assessed by Spirometer and score was recorded in unit of liter, Maximum Expiratory Pressure was measured by Sphygmomanometer and score was recorded in mmHg. To determine the effect of swimming training of player’s one sample t- test was applied; significance level was fit at 0.5. Finding of inquiry admitted that the significant improvement was observed on cardiopulmonary index of intercollegiate badminton players.

Keywords: Swimming Training, Cardio Pulmonary index, Badminton Player, Spirometer.

INTRODUCTION

Swimming is an incredible recreational movement for all individuals. Aerobic swimming can furnish you with a less effect exercise likewise a

decent method to unwind and sense better. Basic swimming styles in aerobic swimming are backstroke, breaststroke, butterfly and freestyle. It is an incredible exercise since you have to carry your whole part of the body facing the blockage of the water. Training of swimming improves performance and prevents injury in athletics. Swimming training must be organized and complete. To do a few arm swings and jumping jacks is not enough. The amount of swimming training varies with the individual; some men will warm up for 20 minutes, while others will take an hour.

Muscle contractions depend on the premature in human beings lowering of the muscle temperature below normal decreases muscle inevitability and work capacity. On the other hand during physical activity muscle temperature rises these two observations put together have led to the practice of discriminate warming up before athletic contests.

Some type of swimming training should be given to all at the start of the period to eliminate muscle tension and promote spatial awareness. The muscles of the body require a constant supply of oxygen and Glycogen if they worked efficiently when pulling the body through the water. During exercise Glycogen is released into blood stream and transported to the muscles by the blood. In the trained athlete a reserve supply of Glycogen is stored in the liver for any emergency, helps maintain a healthful weight, healthy heart and lungs, tones muscles and frame strength.

Aim of the test

To observe the benefits of swimming exercises on cardio pulmonary Index of intercollegiate level badminton players.

Following objectives were there:

- i. The response of swimming exercises on resting pulse rate.
- ii. To know the response of swimming training on maximum breath holding time.
- iii. To find out the benefits of swimming training on systolic B.P.
- iv. To find out the benefits of swimming training on diastolic B.P.
- v. To reveal the response of swimming exercises on vital capacity.
- vi. To understand the outcome of swimming training on maximum expiratory pressure.

Hypothesis

The research scholar assumed that there will be distinctive outcome of water training activities on cardio pulmonary index of intercollegiate badminton players.

Methodology

Sources of data

Data was collected from the Degree College of Physical Education, Amravati.

Selection of the subjects

30 male intercollegiate level badminton players of DCPE, Amravati were appointed as testee. Subjects were taken from 18 to 25 years of range.

Sampling Technique

The researcher applied simple random sampling technique.

Criterion Measures

Hyman's Cardio-pulmonary index to measure the efficiency of the Cardio-pulmonary index based on the formula by Hyman.

$$\text{C.P.I} = \frac{\text{V.C.} + \text{M.B.H.} + \text{M.E.P.} + \text{Age}}{\text{S.P.} + \text{D.P.} + \text{P.R.}}$$

- V.C.:** Maximum air expelled was scaled by Wet Spirometer and noted in litre/ ml.
- M.E.P.:** Maximum exhaled force was noted by Sphygmomanometer in mmHg.
- M.B.H. :** Maximum Inspiratory Breath Holding Capacity was taken in seconds.
- Age :** The age was recorded in completed years.
- S.P. :** Stethoscope was used for Systolic pressure.
- D.P. :** Stethoscope was used to scale diastolic pressure.
- P.R. :** Pulse Rate was scaled in minute.

Compilation of Data

Necessary data were gathered before the applying of training program and immediately after conclusion of the test program on all selected subjects of experimental as well as control group.

Analysis of Data

The data pertaining to each of the selected cardio pulmonary index were examined statistically by applying independent and dependent t-test if any distinctive changes observed. The significance level was set at .05

A conclusion of the statistical inquiry is presented below:

1st Table

Summary of mean, t-ratio and S.D. for the prior and posttest study on the following Physical, Psychological and Motor variables of Experimental Group

Variables (Prior Test)	Mean	St.Dev.	M.D.	S.E. of Mean Diff.	t-ratio
Control group	0.534	0.084	0.05	0.04	1.25 [@]
Experimental group	0.588	0.046			

[@]not distinctive at 0.05 level tabulated $t_{0.05(28)} = 2.048$

On the basis of table no.1 mean values in the prior test of control team as well as prior test of test applied group is distinctive, as a result of computed t-value of 1.25 is lower than formulated t-value i.e. 2.048. Mean difference has been graphically depicted in figure-1.

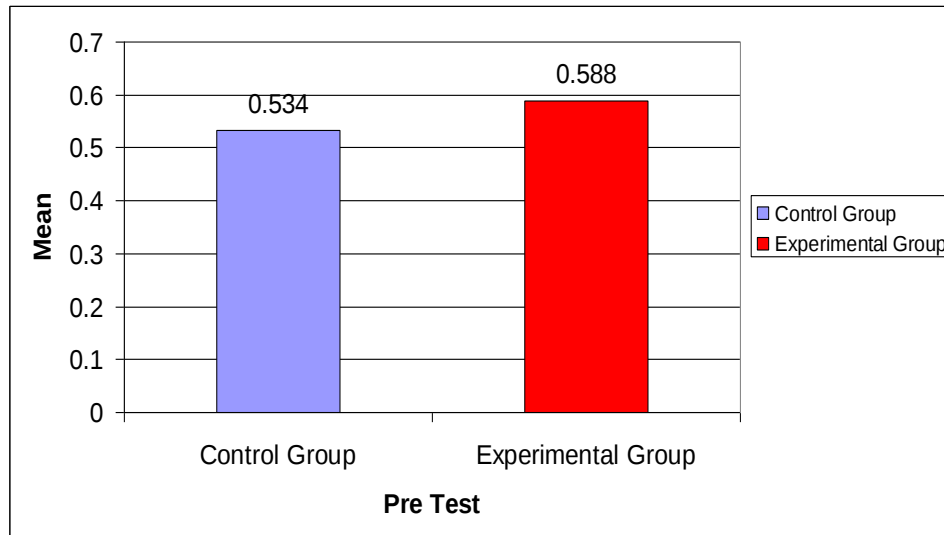


Figure-1: Showing Mean Difference on Cardio Pulmonary Index among the means of pre-test of Controlled as well as Test Applied Group

Table-2

Details of S.D., t-ratio and mean for cardio pulmonary index among the means of prior test and posttest of training team players

Testing Condition	Means (prior and posttest)	standard Dev.	Difference of mean	St.error of m.diff.	t-ratio
prior-test	0.529	0.085	0.03	0.01	3*

post-test	0.567	0.048			
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*distinctive at 0.05 level tabulated $t_{0.05(19)} = 2.09$

On the basis of table no.2 changes of mean among the prior test and posttest of test applied group is distinctive, as a result of the computed t-value of 3 is greater than the formulated t-value of 2.09. Difference of means has been graphically depicted in figure-2.

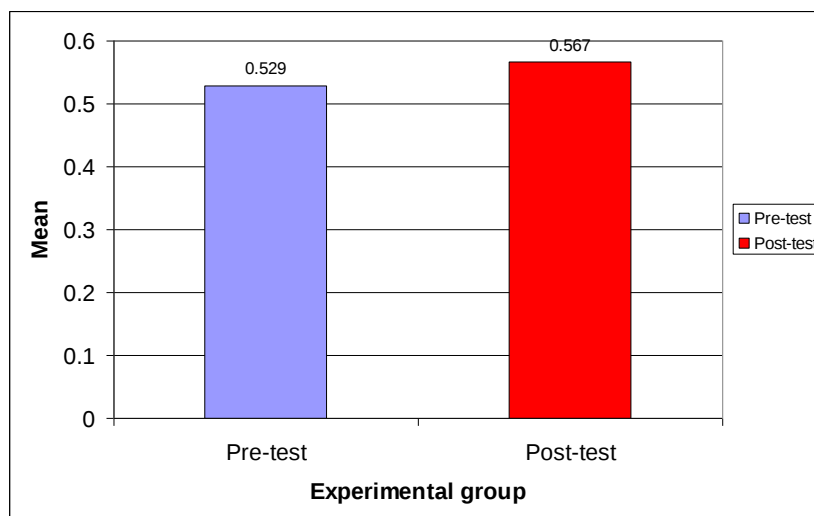


Figure-2: Showing means difference on cardio pulmonary index among the means of prior test and posttest of test applied group

3rd Table

Details of S.D., t-ratio and mean cardio pulmonary index among the means of prior test and posttest of

Non training applied group

Testing condition	Means	St.Dev.	M.Diff.	Standard Error of Mean Diff.	t-ratio
Pre-test	0.529	0.085	0.0	0.01	0.5 [@]
Post-test	0.534	0.084			

[@] not distinctive at 0.05 level tabulated $t_{0.05 (19)} = 2.09$

Difference of mean among the prior test and posttest of non-training applied team is insignificant, as a result of the calculated t-value of 0.50 is smaller than the formulated t-value of 2.09. The Figure is shown in the table below:

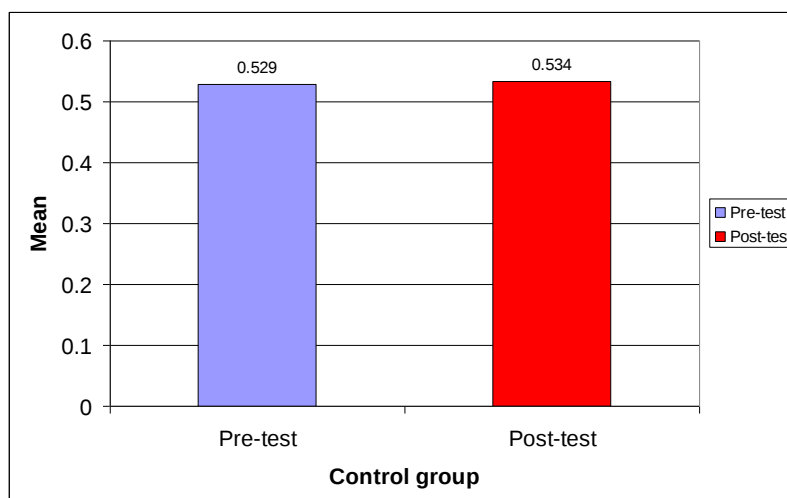


Figure-3: Showing Mean Difference on Cardio Pulmonary index among prior test and posttest means of controlled team

Table-4

Details of S.D., t-ratio and means for cardio pulmonary index among the posttest of non-training and training group

posttest	mean	St.Dev.	M.D.	S.E.	t-ratio
Non-training Group	0.567	0.048	0.02	0.01	2 [@]
training Group	0.588	0.046			

[@]not distinctive at 0.05 level tabulated $t_{0.05 (28)} = 2.048$

On the basis of table no.4 difference of mean among the posttest of training group and posttest of non-training group is not distinctive; as a result, calculated t-value i.e. 2 is lower than formulated t-value of 2.048. Difference of means has been graphically presented in figure-4.

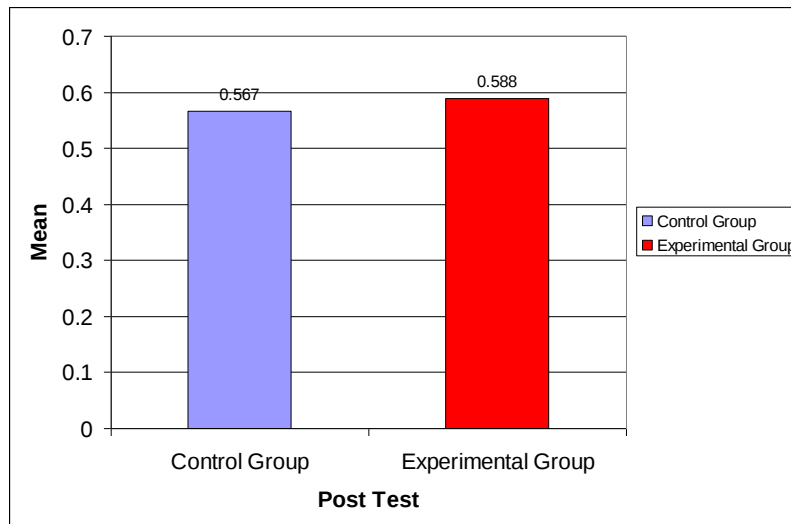


Figure-4: Showing means difference on Cardio Pulmonary Index among the posttest mean value of non-training and training group

Discussion on findings

Based on conclusion from Table 2 it was comprehended that there was huge impact of Swimming Training on cardiopulmonary index of intercollegiate badminton players. The huge impact might be credited to the way that a month and a half of swimming preparing project may be adequate to impact the cardiopulmonary file in light of the fact that the age gathering of the testee was such that biological difference happen inside the body like vital capacity, maximum breath holding time and greatest maximum expiratory pressure henceforth, critical impact because of multi week of swimming preparing on cardio pulmonary index appeared in the test.

Discussion of hypothesis

At the starting point of the test it was assumed that there might be distinctive outcome of swimming training on Cardiopulmonary index of intercollegiate badminton athletes.

It can be concluded that there was distinctive improvement of swimming training on cardiopulmonary index of intercollegiate players. Therefore, the hypothesis stated earlier is accepted.

Conclusions

Internally, the limitations of this investigation and conclusion are drawn: Subjects have shown improvement in cardiopulmonary index inside the body like vital capability, extreme breath holding time and extreme expiratory pressure hence, significant improvement due to six week of swimming training on cardio pulmonary index was appeared in the investigation.

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