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✉: gkujournal@gku.ac.in

Impact of Swimming on The Cardiovascular Endurance of School Student

[1]Mr. Dusyant, [2] Dr. Jaswinder Singh

[1]M.P.Ed. Research Scholar, Guru Kashi University, Talwandi Sabo, Bathinda, Punjab

[2]Associate Professor, Faculty of Physical Education, Guru Kashi University, Talwandi Sabo, Bathinda, Punjab

Email: [2]drjaswindersingh@gku.ac.in

Abstract – The purpose of this study was to determine the effects of swimming on cardiorespiratory endurance for secondary school students. The authors speculated that swimming would result in a high cardiorespiratory endurance. Twenty young male swimmers (15-18 years old) were included in the study. Participants were recruited on a random basis from Mayur Swimming Pool, Mahendergarh (Haryana). The sample included male high school students. Cardiorespiratory endurance was measured by the Harvard Step Test at preintervention and postintervention after 6 weeks of swimming training. Subjects were divided into groups, those who underwent swimming training (Experimental group, n = 10)) and subjects that did not undergo any training (control group n = 10). Data were analyzed using paired t-test. Results that indicated a significant increase in the cardiovascular endurance of the experimental group and as such revealed an overall positive impact of the swimming training program on participants.

Keywords: Cardiovascular Endurance, Swimming, Secondary School Students

1. INTRODUCTION

Swimming is one of the earliest recorded forms of exercise; for example, it has been practiced since prehistoric times in these ancient references contain those to swimming such as in historical biblical and Grecian texts. Swimming was widely practiced in ancient civilizations including the Egyptians, Greeks and Romans. It was in the outset considered more as a survival skill than a sport or leisure activity, and part of military training. Warrior skills This was an essential skill of a warrior and highly prized as it could save a life in warfare.

Continuous Progress in Our Fast-Paced World In our competitive and fast-paced world of today, constant progress and development cannot be overstated. The human race is seeking a superior living condition, which tends to be promoted by advanced with science and technology. Maintaining a Healthy Heart, the capacity of the heart and lungs to collaborate in supplying oxygen to the body's big muscles throughout extended durations of strenuous exercise is known as cardiovascular endurance. These activities included swimming, jogging, cycling and walking. Commonly referred to as cardiovascular endurance, aero capacity or cardio-respiratory fitness – it is the ability to train the body for a prolonged period of time and demands great adjustment from both the circulatory and respiratory system.

2. METHODOLOGY

The subjects of the present investigation were the male swimmers from secondary schools of Mayur Swimming pool, Mahendergarh (Haryana). A sample of 20 male swimmers, aged between 15 and 18 years

old, was randomly chosen through simple random sampling. Cardiovascular Endurance-Criterion: I-IOP and BADG against a health-related criterion measure of cardiovascular endurance, the Harvard Step Test.

The main purpose of the research was to investigate the influence of swimming towards cardiovascular endurance of secondary school students. "It should give swimming coaches and competitive swimmers some useful information about what cuts resting blood pressures, though I believe other types of aerobic activity are better for developing the cardiovascular system." It was hypothesised that swimming would significantly improve cardiovascular endurance in male secondary school students.

Table 1 Cardio-Vascular Endurance between Pre and Post Test of Control Group

Control Group	Mean	S.D.	M.D.	O.T.
Pre. Test	91.88	4.52	2.41	0.22
Post Test	94.29	3.96		

Interpretation:

Table 1 demonstrates that although there is an increase in the mean value from the pre-test (91.88) to the post-test (94.29), the mean difference (M.D.) is 2.41. A *t*-test was applied to determine the statistical significance of this change. The computed t value, t (0.22) was less than cvt of 2.26 at 5% level of significance. Therefore, the improvement in cardiovascular endurance within the control group is not statistically significant, as no structured training was provided to these participants.

Graph 1 Graphical Representation of Cardio-Vascular Endurance between Pre and Post Test of Control Group

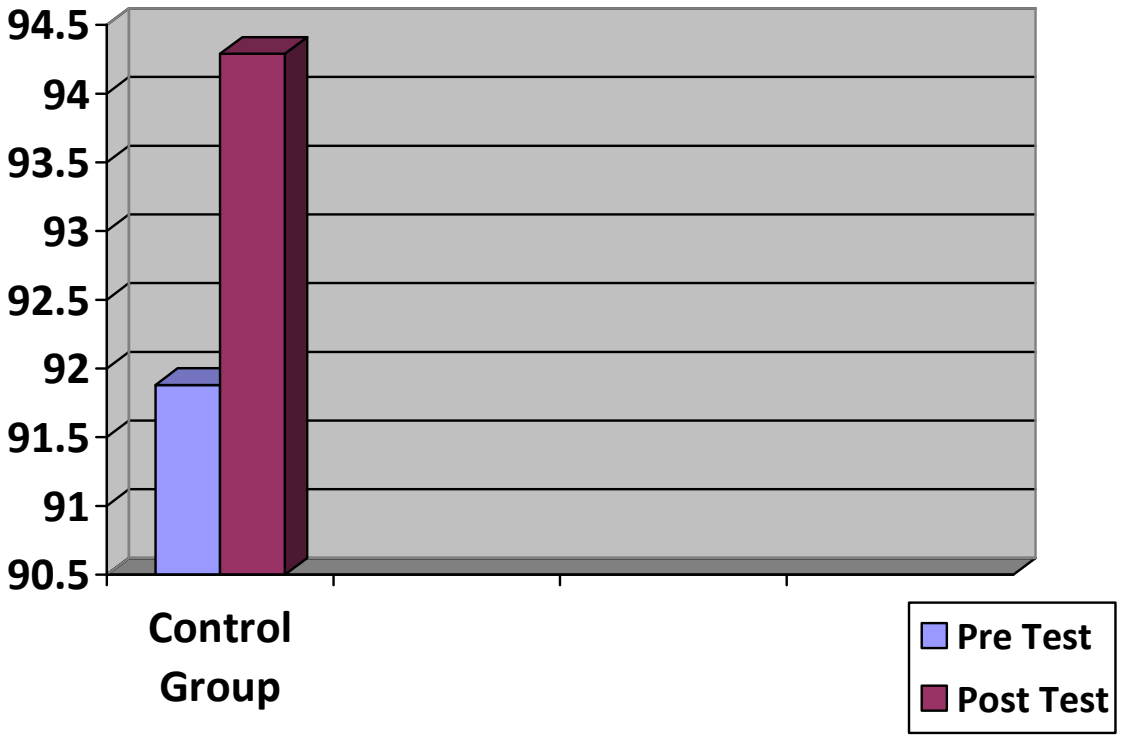


Table 2 Cardio-Vascular Endurance between Pre and Post Test Of Experimental Group

Experimental Group	Mean	S.D.	M.D.	O.T.	T.T.
Pre Test	94.19	2.68	18.5	3.54	2.26
Post Test	112.69	10.4			

Table 2 Shows that there is a significant difference between the means of pre- and posttest among the experimental group. The means were raised from 94.19 to there being a 112.69; average difference of points, in Youmans' name. At the. 05 level of significance, there is evidence to reject the null hypothesis because the obtained t value of 3.54 is greater than critical t 2.26. This is evidence that the 6-week swimming program had greatly enhances cardiovascular endurance.

Graph 2 Graphical Representation of Cardio-Vascular Endurance Comparison between Pre and Post Test of Experimental Group

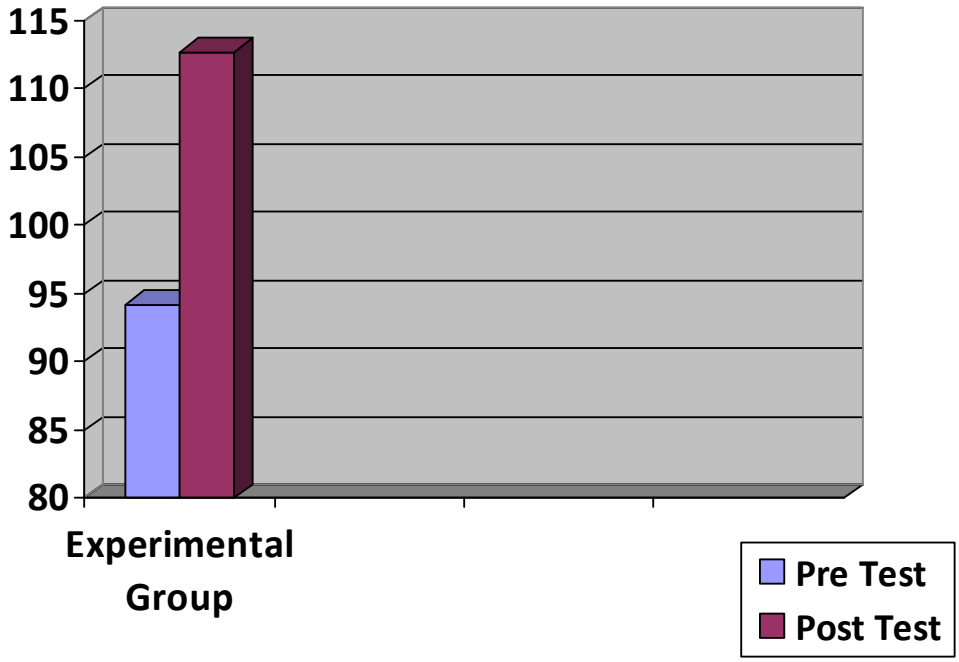


Table 3 : Cardio-Vascular Endurance between Post Test of Control and Experimental Group

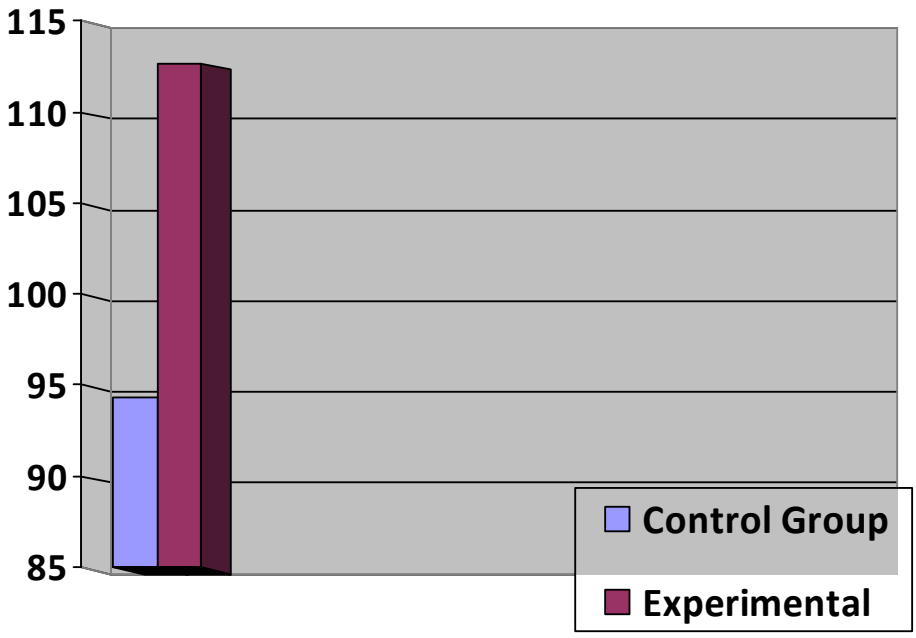
Group	Mean	S.D.	M.D.	O.T.	T.T.
Control	94.29	3.96	18.4	5.69	2.1
Experimental	112.69	10.4			

Interpretation:

Table 3 indicates a considerable difference between the post-test means of the control and experimental groups. The control group achieved an average score of 94.29 and the experimental group scored

significantly higher with a mean value of 112.69 (mean difference = 18.4). The obtained t- value is 5,69 which exceeds from the critical value of t is at the.05 confidence level. This indicates a measurable enhancement of the cardiovascular endurance in to the subjects of experimental group who have participated in swimming program for six weeks in comparison with the control group.

Graph 3 Graphical Representation of Cardio-Vascular Endurance between Post Test of Control Group and Experimental Group



Discussion of Findings

The analysis of the obtained data reveals a statistically significant enhancement in cardiovascular endurance among participants subjected to the swimming training regimen. This confirms that the structured six-week swimming program had a positive and measurable impact. The intervention effectively enhanced the cardiovascular capabilities of secondary school students.

Justification of Hypothesis

Originally, it was hypothesized that swimming would have marked effects with respect to cardiovascular endurance. Based on the findings of this research, this hypothesis is validated and accepted. It should be noted that many conventional cardiovascular endurance assessments were originally designed for clinical diagnostics and may not be entirely suitable for evaluating fitness levels in healthy and active adolescents.

Discussion of Findings

Analysis of the collect data shows that there is highly significant increase in cardiovascular endurance on swimming training. This gives an indication that the structured six weeks swimming practice was effective. The intervention improved the cardiovascular fitness of high-school students.

Justification of Hypothesis

The initial hypothesis posited that swimming would have a significant influence on cardiovascular endurance. The results of this study support this assumption, leading to the acceptance of the hypothesis.

Certainly, it should be noted that many of the cardiovascular endurance tests were originally developed by physicians to diagnose medical disorders and are essentially screening tools. These tests do not necessarily provide a complete assessment of cardiovascular fitness in healthy, active young people.

The principal aim of this research was to evaluate the impact of swimming on the cardiovascular endurance of secondary school students. Results demonstrated a significant improvement, indicating that the 6-week swimming program successfully increased the MVIC of subjects.

3. Conclusion

This research proved that a six-week- swimming program has great effect on cardiovascular endurance in high school boys. In the experimental group, which conducted swimming training, endurance differences in comparison to the control were pronounced, indicating beneficial effects of swimming on cardiovascular status. As an aerobic activity, swimming provides good conditioning for the heart and the lungs, thus making it a suitable modality to maintain cardiovascular fitness among students. Swimming is also low-impact thus less hazardous to injuries and can be a good sport for the young. This study favors the argument of introducing swimming in school physical education programs to help improve cardiovascular health. Conclusions Taking into account the beneficial outcomes, swimming is recommended as an enjoyable and effective form of exercise for endurance enhancing activities. It may be an area of additional investigation to examine the long-term impact of swimming and the benefits in younger or other sex groups as well to further prove it as an effective stimulant of cardiovascular health.

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