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Effect of swimming on cardiovascular endurance of secondary school students of District Shopion in J&K UT

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Abstract

Today the games and sports has become of prime importance in the society. Everyone wants to win and stood first. With the enhanced status of sports in the society the provision of sports training has become very important although the need for competent training has long been recognized. Without provision of effective sports training the sportsperson's potential will never be fulfilled. As it has been rightly said, the comprehensive sports training programme is the key factor in producing skillful high performers. There is an ample evidence of the importance of swimming as survival activity. Whether it is the consideration of peace time trade, colonization sea battles, sea raids, or the transportation of armies by water the human history is replete with references to swimming. With competition in the case of weapons prevalent in the training of youth from china to attractive, it is probable that competition in swimming was not uncommon to Egyptians, Assyrians, and Persians. Swimming contests are said to have been an important activity at the Grecian Hermine games the history of human civilization is an excellent admix of war and sport to the advancement of which swimming has so profusely contributed through the origin of swimming as a sport is still shrouded in mystery swimming championship were first held in Japan in early 1600s. Swimming has been an Olympic sport since the inception of the modern Olympic games in 1896.

Swimming has been known since prehistoric times, the earliest records of swimming dated back to Stone Age paintings from around 7000 years ago. Some of the earliest reference included the Gilgamesh, the Iliad, the Odyssey, the Bible (Ezekiel 47:5, Acts 27:42, Isaiah 25:11) Beowulf, and other sages. In 1958, Nicolas wynmann, a German professor of languages, wrote the 1st swimming book. The swimmer or a dialogue on the art of swimming competitive swimming in Europe started around 1800, mostly using breast stroke, 1873 John, Aarthur Trudgen introduced trudgen to Western swimming competitions after copying the front crawl used by native Americans, due to a British disregard for splashing, trudgen employed a Scissor Kick instead of the front crawl's flutter kick, swimming was part of the 1st modern Olympic games on 1896 in Athens, in 1902 Richard Vavil introduced front crawl of the western world, in 1908 the world of swimming association, Federation International de Notation (FINA), was formed, Butterfly was developed in 1930s and was at 1st a variant of breast stroke, until it was accepted as a separate style in 1952.

Keywords: physiological fitness, high school students

Introduction

In addition to acquiring the physical process necessary to perform the work required for survival, youth were expected to master the communication media of bodily movement. The communication media of bodily movement through which they could articulate their wants and fears to the invisible forces that controlled their lives. Modern life has removed man from natures begin and rhythmic

influence. The internal rhythms the inherent clock-work like nature of the nervous and endocrine systems have become imbalanced through the effect of stress, tension resulting feeling of discomfort and lack of wellbeing and leading to disease. But we have followed physical exercise and yogic exercises for promoting physical fitness. The term exercise is often applied to asana but asana should never be confused with an exercise. The work exercise gives us an idea of quick and force movement of the body or its parts and repeated action which usually lead to an exertion, tension and

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Origin and Development of Swimming

Swimming has been known since prehistoric times. The earliest records of people swimming are drawings found near Wadi Sora (or soru) in the southwestern part of Egypt which date back about 6000 years ago. The Bible, the Iliad and the Odyssey all contain written references to swimming. Many ancient civilizations swam, including the Egyptians, Phoenicians, Persians, Romans and Greeks. The English are considered the first modern society to develop swimming as a sport. However, competitive swimming in Europe was started around 1800, mostly using breaststroke. The front crawl was then called as trudgen known by the name of its inventor, John Arthur Trudgen in 1873. In 1902, the trudgen was improved by Richard Cavill, using the flutter kick. Butterfly was developed in the 1930s and was at first a variant of breaststroke, until it was accepted as a separate style in 1952.

Federation (International and Indian)

In 1908, the world swimming association, Federation International de Natation de Amateur (FINA), was formed. The Swimming Federation of India (SFI) governs swimming sport in India. It is affiliated to FINA, the world governing body. The SFI came into existence after the amalgamation of its predecessors, the National Swimming Association (NSA) and the Indian Swimming Federation (ISF). The two rival associations were at dispute over affiliations issues. The Kolkata based NSA got affiliation from FINA in 1932-33 whereas the ISF was supported by the Indian Olympic Association (IOA). After much mudslinging the issue was resolved in 1948 with the intervention of then Prime Minister Pandit Jawaharlal Nehru and the Swimming Federation of India came into being.

Inclusion of Game in Olympics

Swimming was part of the first modern Olympic games in 1896 in Athens for men only Women's swimming made its debut in 231912 Olympic games. The first modern Olympic Games had only four swimming events but the Olympics now have 32 swimming races, 16 for men and 16 for women.

Cardiovascular Endurance

It may be defined as the ability of heart and lungs to take in and to transport adequate amounts oxygen to the working muscles for activities (that involve large muscle masses), to be performed over long periods of time. For example, walking, running swimming and bicycling activities involve large muscles (Fox *et al.* 1993). Cardiovascular endurance has many synonyms like cardio-respiratory endurance, circulatory-respiratory endurance, cardio-pulmonary endurance aerobic power etc. the cardiovascular endurance involves moderate contraction of large muscle groups for long periods of time during which maximum adjustments of circulatory-respiratory system are necessary as in continuous brisk walking, running, swimming, climbing, hiking, aerobics, bicycling and the like (Clarke and Clarke, 1987).

Objectives

i). To study the cardiovascular endurance of secondary school

students.

ii). To study the effect of swimming on cardiovascular endurance of secondary school students.

Methodology

Source of Data

The sources of data were swimmers of secondary high school students of Shopain.

Selection of Subjects

For the present study 40 male swimmers were selected randomly from Shopain. The age of the subjects ranged from 15 to 20 years.

Sampling Procedure

The subjects were selected by using simple random sampling method.

Selection of Tests and Criterion Measures

Harvard Step test and Vital capacity measurement was administered on Swimmers.

Administration of Test Cardiovascular Endurance Equipments

20 inch bench, stopwatch, metronome (optional) pen, dairy.

Purpose: to measure cardiovascular endurance.

Procedure: The tester give demonstration of stepping up style to be followed by the subjects during the test the speed of metronome should set at the speed of 120 beats per minute. Depending upon the availability of 20 inch bench, and the pulse count tester. A group of 1-4 subjects will ask to start the stepping up and down exercise. In consonance with the sound of metronome and by starting the stop watch at a single go before this the subject should place one foot on the bench. On the second sound of the metronome the subject should. Place the next foot on the bench with the body exact straightening the leg's and the back. Immediately after reaching the erect posture he should down his one foot when the metronome give's its third sound. And on the fourth sound of the metronome the subject should took his another foot downwards. In the above manner for five minutes at the pace for 30 seconds I steps per minute. The subject is also called to take the off and step down with the same foot. The stepping exercise are continuous for exactly five times the subject is allowed to on his request of being fatigue in earlier case the during of the exercise in second was recorded the maximum number of sound was 300seconds for the full five minutes. After completing the exercise the subject was asked to sit on chair the pulse was counted as 1- ½, 2-2½, 3-3½ minutes after stepping A physical efficiency index was computed utilized by this formula.

$$P.E.I = \frac{100 \times \text{duration of exercise in seconds}}{2 \times \text{Sum of recovery pulse coun}}$$

Table 1: Training Program 6 Week Swimming Training Program

Week	Day	Exercise after Warm-up	Sets	Duration	
I & II Week	Monday To Saturday	- 25mtr warm-up - 25mtr free style - 25mtr free kick style - 25mtr Fast free style - 100 mtr cooldown	4 5 4 5	After Set 20 sec Rest for Recovery	Approx. 1 Hr
III & IV Week		- 25mtr warm-up - 25mtr free style - 25mtr free kick style - 25mtr Fast free style - 100 mtr cooldown	4 6 5 6		Approx. 1.10 Hr
V & VI Week		- 25mtr warm-up - 25mtr free style - 25mtr free kick style - 25mtr Fast free style - 100 mtr cooldown	4 7 6 7		Approx. 1.30 Hr

Warm up and cool down was 15 min and 10 min on every day. Training program was from Monday to Saturday in a week, and on Sunday total rest was given.

Collection of Data

The data pertaining to this study was collected by administrating the test on the selected subjects.

Training programme was of 6 weeks. The data was tabulated and statistical analysis was done which is given in chapter 4.

Statistical Technique

E.G. – Experimental group, C.G. – control group, N – Number of subjects in group, M – Mean score, MD – Mean difference between pre and post scores, SD – Standard deviation of test score, „t“ – „t“ value, H–hypothesis, df – degree of freedom, „t“ follows t distribution with (N1+ N2 -2) in 0.05 level of significance.

Analysis and interpretation of data

In the chapter the gathered data from pre-test and post-test of

control group –A, and Experimental group –B are presented in tables, graphs, figures and dissuasion and finding are also presented in this chapter.

The purpose of this study was to find out the effect of six week (42 days) Swimming training on cardio-Vascular endurance of control group –A (N=20), and experimental groups (N=20) were analyzed by using the „t“ test and post-test means of both groups to find out the significant difference among the selected variable as cardio-Vascular endurance of two groups of secondary school students and the subjects were selected by using Random sampling method.

Findings

The data collected on 40-male subjects before and after six week training program on cardio-Vascular endurance was analyzed by comparing the means of pre and post test of control and experimental groups and was again statistically analyzed by applying „t“-test to check the significant difference among selected variables. Therefore separate 60 tables and graphs have been presented.

Table 2: Cardio-vascular endurance between pre and post test of control group

Control Group	Mean	S.D.	S.E. Comb.	M.D.	D.F.	O.T.	T.T.
Pre. Test	95.736	24.458	6.118	5.363	38	0.877	2.021
Post Test	101.099	12.262					

Level of Significance = 0.05

Tabulated 't' 0.05 (38) = 2.021

Table-2 reveals that there is significant difference between means of pre and post test of control group, because mean of pre test is 95.736 is less than mean of post test is 101.099, and there mean difference is 5.363. To check the significant difference between pre and post test of control group the data was again analyzed by applying „t“ test. Before applying „t“ test, standard deviation was calculated between pre-test where S.D. = 24.458 and Post test

where S.D. = 12.262 and their Combine standard error = 6.118. There was not significant difference between pre and post test of control group because value of calculated „t“ = 0.877 which is less than tabulated „t“ = 2.021 at 0.05 level of confidence, which shows no improvement was found in Cardio-Vascular Endurance of control group because no training was given to the subjects of control group.

Table 3: cardio-vascular endurance between pre and post test of experimental group

Experimental Group	Mean	S.D.	S.E. Comb.	M.D.	D.F.	O.T.	T.T.
Pre. Test	92.010	6.471	2.010	2.077	38	1.034	2.021
Post Test	94.088	6.238					

Level of Significance = 0.05

Tabulated 't' 0.05 (38) = 2.021

Table-3 reveals that there is significant difference between means of pre and post test of experimental group, because mean of pre test is 92.010 is less than mean of post test is 94.088, and there mean difference is 2.077. To check the significant difference between pre and post test of experimental group the data was again analyzed by applying „t“ test. Before applying „t“ test, standard deviation was calculated between pre-test where S.D. = 6.471 and Post test

where S.D. = 6.238 and their Combine standard error = 2.010. There was least significant difference between pre and post test of experimental group because value of calculated „t“ = 1.034 which is greater than tabulated „t“ = 2.021 at 0.05 level of confidence, which shows six weeks aerobic training have least effect of six weeks swimming training on the Cardio-Vascular Endurance of experimental group.

Table 4: cardio-vascular endurance between post test of control and experimental group.

Group	Mean	S.D.	S.E. Comb.	M.D.	D.F.	O.T.	T.T.
Control	101.099	12.262	2.799	7.011	38	2.279	2.021
Experimental	94.088	6.238					

Level of Significance = 0.05

Tabulated 't' 0.05 (38) = 2.021

Table-4 reveals that there is significant difference between means of post test of control and experimental group, because mean of post test of control group is 101.099 is greater than mean of post test of experimental group is 94.088, and there mean difference is 7.011. To check the significant difference between post tests of control and experimental group the data was again analyzed by applying „t“ test. 63

Before applying „t“ test, standard deviation was calculated between post tests where S.D. (Control group) = 12.262 and S.D. of (experimental group) = 6.238 and their Combine standard error = 2.799.

There was significant difference between post tests of control and experimental group because value of calculated „t“ = 2.279 which is greater than tabulated „t“ = 2.021 at 0.05 level of confidence, which shows improvement in Cardio-Vascular Endurance among experimental group due to six weeks swimming training and no improvement in Cardio-Vascular Endurance was found in control group.

Conclusion

Within the limitations of the study and from statistical analysis the following conclusion was drawn.

There was significant effect on cardiovascular endurance of secondary school students.

Recommendation

In the light of results obtained and conclusions drawn the following recommendation were made for future investigations and for practical applications:

1. This study may be repeated to other physiological variables on the same subjects.
2. The study may be constructed with longer duration of training programme.
3. The similar study may be repeated on the female subjects.
4. To make this study more authentic and valid, the study may be repeated on the larger sample.

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