



VITAL CAPACITY AND SWIMMING PERFORMANCE AMONG BEGINNERS IN SWIMMING

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ABSTRACT

The aim of the study was to find out the effect of vital capacity and swimming performance among beginners in swimming. This study was the training based study for a period of four weeks time. 30 beginners were selected from Pondicherry State. Vital capacity and Swimming performance were tested among the beginners of swimming. Their age ranged between 17 to 21 years. All the 30 swimmers were divided into three equal groups. Experimental group I, Experimental group II and Control group III. Basic Swimming with Dry Land Training and Basic Swimming Training was given as Training programme. Before and after the training period Vital Capacity and Swimming Performance were tested and carried out for Statistical Treatment. Results indicated that Basic Swimming with Dry Land Swimming Training enhanced the ability of the swimmers compare to Basic Swimming Training. Four Weeks Training programme showed significant improvement in Vital Capacity and Swimming Performance among the Beginners. The Dry Land Training improve the Swimming performance not only Experimental Group I but it shows the significant improvement in Experimental Group II.

KEY WORD: Vital Capacity, Swimming, Dry Land Training.

INTRODUCTION:-

Swimming has been practiced as both a sport and a recreational activity for thousands of years. For a beginner, on the other hand, swimming may seem like as exhausting chore than can be done well only by people who possess a natural talent for it. Swimming differs from other sports in several ways. It is not necessarily a natural activity for human beings. Indeed, humans bear little resemblance to species that are geared to operate in an aquatic environment: for example, fish don't have necks. As a result, in order to swim, we human must make some adaptations in part to accommodate our differences but also to take advantage of them. (Cordain L et al., 1990)

For success in swimming, an athlete must first become comfortable in the aquatic environment, which differs dramatically from land-based environment in which we typically operate on a daily basis. (Scott Bay, 2016)

Swimming is a complex sphere of numerous interlaced factors. At its most basic level, good swimming is best achieved by working at it from two sides: stroke mechanics, or techniques and physical fitness, or conditioning. Working toward good swimming from only one side will create improvement. (Lucero & Bleul - Gohlke, 2006)



BENEFITS OF SWIMMING

Swimming is widely recognized by health and fitness professionals as a nearly perfect activity for improving aerobic fitness, flexibility, body strength, muscle tone and coordination. Swimming a

quite simply is the supreme form of water exercise. Challenging to the mind and the body, uplifting to the spirit and the flesh (Scott Bay, 2016)

METHOD & PARTICIPANTS

This study consists of swimmers (beginners) from Pondicherry State. ($n=30$). All the swimmers were explained about the training programme and get a consent form individually. At the time of the study, all the subjects were in-season with practices averaging 60 minutes a day, 6 Sessions a week. In addition, the subjects were voluntary participated. The Subjects were divided in to three groups namely Experimental Group I, Experimental Group II and Control Group.

PROCEDURE AND MATERIALS

All the Swimmers were tested prior to after the training programme on Vital Capacity and Swimming Performance.

Vital Capacity: This test is to find out the vital capacity of the swimmers. This test is determined by the Spiro meter in sitting position. The swimmers were asked to inspire the utmost quantity of air voluntarily and then the subject was asked to blow into the dry Spiro meter to the maximum. While taking the test the nose of the subject was clipped using a nose clip. This tested was noted from the movement of circular volume indicator which was set at '0' before the vital capacity measure was taken. The result was recorded in milliliter.

Swimming Performance: This test is to evaluate the performance of the Swimmers. At the beginning of the test the swimmers were stand before their respective lane for the test. When the Starter Shows the Signal the Swimmer start swimming from the starting point and has to finish the 50 meters. The performance was noted in the form of Seconds. The Foul start may consider as retrials.

TRAINING PROTOCOL

Every Day the programme starts with Warm session Off the Pool for Both the Training Groups. Monday, Wednesday and Friday is meant for The Experimental Group I and Tuesday, Thursday and Saturday is meant for Experimental Group II for four weeks.

Basic Swimming with Dry Land Swimming Training consists of Pencil Float, Pencil Drop, over and Under Arm Breathing, Flutter Kick Duck Drill, Vertical Flutter Kick. Streamline Front Flutter Kick and Dry Land Swimming Training.

1. Swimmer Push-Ups
2. External Rotation (Rubber Tubing)
3. Internal Rotation (Rubber Tubing)
4. Plank
5. Streamline Squat Jumps
6. Lunge Jump Switch
7. Streamline Superman
8. Catch (Rubber Tubing)
9. Freestyle Catch and Roll
10. Flutter Kicks
11. Lunge with Twist
12. Streamline Squats

Basic Swimming Training consists of Pencil Float, Pencil Drop, over and Under Arm Breathing, Flutter Kick Duck Drill, Vertical Flutter Kick. Streamline Front Flutter Kick.

After the concern training programme got over a Cool Down session must need to relax the muscle. The Cool Down session consists of Light Static Stretching for 5 to 10 minutes.

Statistics

ANCOVA was used to find out the effect of Basic Swimming Training and Basic Swimming Training with Dry Land Training among Swimmers. After the collection of Data the raw scores were statistically analyzed with an IBM SPSS version 20.

Results

Table-1

Variables	Test	Exp. Grp. 1	Exp. Grp. 2	Control Grp.	Source of Variance	Sum Squares	Df	Mean Squares	F
Vital Capacity	Pre-Test Mean	3620.00	3577.50	3572.50	Between Groups	27250	2	13625	0.06
					Within Groups	13001750	57	228101	
	Post-Test Mean	3715.00	3743.75	3565.00	Between Groups	368521	2	184260	5.89*
					Within Groups	11815344	57	207287	
	Adjusted Post-Test Mean	3686.64	3755.56	3581.54	Between Groups	307178	2	153589	43.08*
					Within Groups	199667	56	3565	
	Mean Diff	95.00	166.25	-7.50					
	Swimming Performance	Pre Test Mean	42.74	44.49	45.44	Between Groups	56.42	2	28.21
Within Groups						622.68	42	14.83	
Post-Test Mean		37.40	39.37	42.78	Between Groups	222.81	2	111.40	7.33*
					Within Groups	638.71	42	15.21	
Adjusted Post-Test Mean		38.81	39.12	41.62	Between Groups	67.28	2	33.64	18.43*
					Within Groups	74.84	41	1.83	
Mean Diff		5.34	5.12	2.66					

*F-ratio at 0.05 level of significance for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16. (*Significant)*

Table-1 shows that there is no significant difference in pre-test means and the results shows that there the random assignment at initial stage is successful for both vital capacity and swimming performance.

The post-test comparisons between the groups proved to be significant as the obtained F-value of 5.89 is greater than the required F-value of 3.16 to be significant at 0.05 level. The obtained F-value on adjusted mean differences was 43.08, which was greater than the required F-value of 3.16 to be significant at 0.05 level. Hence, it is proved that there is significant difference among adjusted post-test means.

As far as the Swimming Performance is concern the post test comparisons between the groups proved to be significant as the obtained F-value of 7.33 is greater than the required F-value of 3.16 to be significant at 0.05 level. The obtained F-value on adjusted mean differences was 18.43, which is greater than the required F-value of 3.16 to be significant at 0.05 level. Hence, it is proved that there is significant difference among adjusted post-test means.

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test.

Table 2: Scheffe's Confidence Interval Test Scores on Vital Capacity

Variables	Means			Mean Difference	Required CI
	Exp. Grp. 1	Exp. Grp. 1I	Control		
Vital Capacity	3686.64	3755.56		68.92*	47.47
	3686.64		3581.54	105.10*	47.47
		3755.56	3581.54	174.02*	47.47
Swimming Performance	38.81	39.12	-	0.31	1.25
	38.81	-	41.62	2.81*	1.25
	-	39.12	41.62	2.50*	1.25

* Significant

DISCUSSION ON FINDINGS

Basic Training in Swimming with Dry Land Training improve Vital Capacity and swimming performance then the Basic Training in Swimming and control group. The result of the present study is considered with the following studies.

Many researches examine numerous reviews about swimming training programme, but only few research have been taken with swimming training and includes psychological aspects as a part of a training programme. However with the exception a study undertaken by Phillip Post et al. (2011) shows the "Effects of imagery training on swimming performance an applied investigation". After 15 weeks of training period the swimmers were tested, based on the test the results of the study exposed that 3 out of 4 participants significantly improved the swimming performance using imagery training. Micheal Sheard & Jim Golby (2011) investigated a study on "Effect of a psychological skills training program on swimming performance and positive psychological development" for national level swimmers. The findings reported that a significant improvement in swimming skills and also an overall significant improvement in participants in positive psychological profiles. Aspenes, et al (2009) conducted a study on "Combined strength and endurance training in competitive swimmers." In this research the experimental group improved 400m freestyle performance. Further it was concluded that the swimming training improves middle distance swimming performance. These studies support the present study relevantly.

Therefore the results are in line with Phillip Post et.al. (2011), Aspenes, et al. (2009) and Micheal Sheard & Jim Golby (2011) and suggested of using the training programme.

CONCLUSION

The study concluded that, significant differences are found among Swimmers on Vital Capacity and Swimming Performance. Further it is concluded that Basic Swimming training program in Dry Land targeted the improvement of swimming performance. The findings of the present study suggest that the swimmers, in addition to developing better coping skills as identify earlier (Lane et al., 2004). Based on the findings of this study suggested that the present training program contributed to improvement to both swimming performance and vital capacity of the swimmers.

REFERENCES

1. Cordain, L., Tucker, A., Moon, D. & Stager, J.M. (1990). Lung volumes and maximal respiratory pressures in collegiate swimmers and runners. *Research Quarterly for Exercise and Sport*, 61(1), 70-74.

2. Lane. (2004). Confirmatory factor analysis of the Test of Performance Strategies (TOPS) among adolescent athletes. *Journal of Sports Sciences*, 22: 803-812.
3. Lucero & Bleul-Gohlke. (2006). *Masters Swimming - A Manual*. UK: Meyer & Meyer Sport Ltd., p.74.
4. Michael Doherry & Lygeri Dimitriou. (1997). Comparison of Lung Volume in Greek Swimmers, Land based athletes and Sedentary controls using allometric scaling. *British Journal of Sports Medicine*, 31: 337-341.
5. Michael Sheard & Jim Golby. (2011). Effect of a psychological skills training program on swimming performance and positive psychological development. *International Journal of Sport and Exercise Psychology*, 4(2), 149-169.
6. Phillip G. Post, Sean Muncie & Duncan Simpson. (2012). The Effects of Imagery Training on Swimming Performance: An Applied Investigation. *Journal of Applied Sports Psychology*, 24(3), 323-337.
7. Scott Bay. (2016). *Swimming: Step to Success*, Human Kinetics, Library of Congress Cataloging Publication. p.34.