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AQUATIC DRILLS WITH AND WITHOUT PROGRESSIVE MUSCULAR RELAXATION TRAINING ON VITAL CAPACITY AMONG PONDICHERRY REGIONAL SWIMMERS: AN EFFECTIVE STUDY

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ABSTRACT

The purpose of the study is to find out the aquatic drills with and without progressive muscular relaxation training on vital capacity in Pondicherry regional swimmers. This method designed to develop the vital capacity of Swimmers for a long time plan for the development of swimming Performance. It is hypothesized that there will be a better significant improvement on vital capacity in Pondicherry regional swimmers. To achieve the purpose of the study, the investigator will randomly select fifteen male swimmers at the age of 18-23 years from Pondicherry swimming center in Mouroungapakkam, Pondicherry. The selected subjects divided in to Experimental group I (Aquatic drills with Progressive Muscular Relaxation), Experimental group II (Aquatic drills without Progressive Muscular Relaxation) and control group III are considered as Independent variables. Vital capacity is selected as Dependent Variable. The experimental training programmes are scheduled five days per week for a period of 4 weeks of Aquatic Drills with and without Progressive Muscular Relaxation (PMR). To observe the hypothesis of the study the collected data will be treated with ANCOVA and Scheffe's post hoc test. The level of significance will be tested as 0.05. The results proved that there was a significant improvement on vital capacity due to Aquatic drills with Progressive Muscular Relaxation (PMR).

KEYWORDS: *Aquatic Drills, Progressive Muscular Relaxation (PMR), Vital capacity.*

INTRODUCTION

Swimming is considered as one of the important physical activities, in which an athlete is able to undertake the best exercise of the whole body.

Swimming is considered by many to be the best form of full body exercise. The well-documented cardiovascular benefits of swimming focus largely on its healthy effect on the heart and lungs. In fact, swimming uses almost every muscle in the body in a coordinated and repetitive, cycling manner that exposes them to sustained exertion in a medium that is thicker than air. Well-conditioned swimmers, in general, have extremely low resting heart rates, a measure of good fitness, and are known to have one of the most developed capillary systems of all athletes. As a swimmer is able to swim faster and faster, the oxygen demand of the muscles increases. As the heart and lungs adapt to meet the demand, new capillaries form, branching out from the existing blood supply network to better provide the muscles in use with more oxygen.

Swimming also requires mastery of breathing timing (more so than any other sport). Whereas on land, athletes have no restrictions on breathing, in swimming getting new air is limited to the time when

the face is out of the water, ultimately boosting fitness even further (Biranchi Narayan Dash, 2009).

Swimming is a great exercise for the reason that swimmer needs to move swimmers full body in opposition to the resistance of the water. All-round exercise for swimming it good for health and mind. Swimming is keep on athletes/swimmers heart rate up but takes some of the impact stress off swimmers body and mind. It's developing cardio reparatory endurance and muscle strength. It's maintaining a good health and keeps healthy weight then developing strong heart and healthy lung vitality.

During aquatic training a swimmers get peaceful mind and feel relaxed after involving in the swimming exercise a swimmer feels good and will be in un-stress mind. The aquatic exercise corrects the body deformities and allying of body posture than develop their body coordination ability and will improve body respiratory system. (Blythe and Lucero, 2011)

HYPOTHESIS

- There would be a significance difference on vital capacity due to Aquatic drill with Progressive Muscular Relaxation (PMR) and Aquatic drill without Progressive Muscular Relaxation (PMR) among Pondicherry regional swimmers.

METHODOLOGY

Forty Five swimmers were selected at random from Pondicherry swimming center, Mouroungapakkam, Pondicherry. Their age ranges from 18 to 23 years. They were divided in to three equal group's consists of fifteen in a group namely experimental group I, experimental group II and control group. Experimental Group I exposed to Aquatic drills with Progressive Muscular Relaxation (PMR), Experimental group II exposed to Aquatic drills without Progressive Muscular Relaxation (PMR) and control group was restricted from participating in the training Programme. The Training programme was allotted for three alternate days per week (Monday, Wednesday, Friday for experimental group I and Tuesday, Thursday and Saturday for experimental group II) in the evening sessions, between 4.30 pm to 5.30 pm. To assess the effect of 4weeks training programme. Vital Capacity is chosen as dependent variables for this study.

CRITERION MEASURE:

All the 45 swimmers were tested on Vital Capacity. The purpose is to measure the Endurance Capacity of the Subjects, for which Peak flow meter was used. The Peak flow was Set to the zero mark and make the participant to sit straight or stand up. The Instructor informed the participant to breathe in as far as possible. The participant lips tightly around the peak flow meter mouthpiece and breathe out as forcibly as possible. The scores were recorded in centimetre

Table 1: EXPERIMENTAL TRAINING SCHEDULE

1st & 2nd Week - Experimental Group I				
Day	**Aquatic Drill**	**Progressive Muscular Relaxation**	**Duration (3 minutes/set)**	**Interval Between Sets**
Monday	Breath control and consistency (50m x 3 laps) Endurance, breathing rhythm, gain technique on turns (50m x 3 laps)	PMR	3 Sets to 4 Sets	30 to 60 Sec
Wednesday	Sprinting and breath control (50m x 3 laps) Sprint starts and endurance swimming (50m x 3 laps)	PMR		
Friday	Sighting land and breath control (50m	PMR		

	x 3 laps) Breathing technique (50m x 3 laps)			
3rd & 4th Week				
Day	**Aquatic Drill**	**Progressive Muscular Relaxation**	**Duration (3 minutes/set)**	**Interval Between Sets**
Monday	Breath control and consistency (50m x 4 laps) Endurance, breathing rhythm, gain technique on turns (50 m x 4 laps)	PMR	4 Sets to 5 Sets	30 to 60 Sec
Wednesday	Sprinting and breath control (50cm x 4 laps) Sprint starts and endurance swimming (50m x 4 laps)	PMR		
Friday	Sighting land and breath control (50m x 4 laps) Breathing technique (50m x 4 laps)	PMR		

1st & 2nd Week - Experimental Group II			
Day	**Aquatic Drill**	**Duration (3 minutes/set)**	**Interval Between Sets**
Tuesday	Breath control and consistency (50 m x 3 laps) Endurance, breathing rhythm, gain technique on turns (50 m x 3 laps)	3 Sets to 4 Sets	30 to 60 Sec
Thurs day	Sprinting and breath control (50 m x 3 laps) Sprint starts and endurance swimming (50 m x 3 laps)		
Saturday	Sighting land and breath control (50 m x 3 laps) Breathing technique (50 m x 3 laps)		
3rd & 4th Week			
Day	**Training**	**Set**	**Interval Between Sets**
Tuesday	Breath control and consistency (50 m x 4 laps) Endurance, breathing rhythm, gain technique on turns (50 m x 4 laps)	4 Sets to 5 Sets	30 to 60 Sec
Thurs day	Sprinting and breath control (50 m x 4 laps) Sprint starts and endurance swimming (50 m x 4 laps)		
Saturday	Sighting land and breath control (50 m x 4 laps) Breathing technique (50 m x 4 laps)		

Further the collected data were analyzed by ANCOVA and followed by Scheffe's post hoc test.

STATISTICAL ANALYSIS

ANCOVA was used to analysis the aquatic training with and without progressive muscular relaxation training on vital capacity among Pondicherry regional Swimmers. After the collection of final score were statistically analyzed with an IBM SPSS version 20.

COMPUTATION OF ANALYSIS OF COVARIANCE AND POST HOC TEST

The statistical analysis comparing the initial and final means of Vital Capacity among Pondicherry Regional Swimmers is presented in Table-2.

Table 2: Computation of Analysis of Covariance on Vital Capacity (Score in Centimeter)

Variables	Test	Aquatic drill with PMR	Aquatic drill without PMR	Control Group	SV	SS	df	MS	F	TF
Vital Capacity	Pre Test	3.56	3.35	3.15	B	1.29	2	0.64	1.15	3.22
					W	5.10	42	0.12		
	Post Test	4.06	3.74	3.04	B	8.14	2	4.07	15.63*	3.22
					W	3.55	42	0.08		
	Adjusted Means	3.92	3.74	3.19	B	3.51	2	1.76	50.60*	3.23
					W	1.00	41	0.02		
	Mean gain	0.50	0.38	0.10						

**Significant at 0.05 level.*

Table 3: Ordered Scheffe's Test of Experimental Groups and Control Groups

Variables	Aquatic drill with PMR	Aquatic drill without PMR	Control Group	Mean Difference	Scheffe's test F-ratio
Cardio Respiratory Endurance	3.92	3.74	-	0.18*	0.14
	3.92	-	3.19	0.73*	0.14
	-	3.74	3.19	0.55*	0.14

**Significant at 0.05 level.*

DISCUSSION ON FINDINGS

The results presented in **Table-3** proved that due to Aquatic drill with Progressive Muscular Relaxation and Aquatic drill without Progressive Muscular Relaxation among Pondicherry regional swimmers were significantly improved over control group. In the case of Vital Capacity Aquatic drill with Progressive Relaxation was significantly better than Aquatic drill without Progressive Relaxation in improving Vital Capacity of Pondicherry Regional Swimmers.

CONCLUSION

It was concluded that there was significant improvement in Vital Capacity among Pondicherry Regional Swimmers due to Aquatic drill with Progressive Muscular Relaxation compare to control group.

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