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ANALYSIS ON RESPIRATORY RATE AMONG SWIMMERS IN SWIMMING TRAINING PROGRAMME

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Abstract

This report examines the topic of respiratory rate of players while swimming, It is not only about the importance of performance in the start, turn and swimming speed, but also about the design of a strength training program. Different approaches are discussed in the literature, of which two are at the forefront. On the one hand, the optimal intensity of strength training is discussed, and on the other, the question of how to plan a certain strength training. In addition to a running summary of the importance of strength training in swimming, the article shows what physiological adaptations must be achieved to improve performance in the long term. In addition, an attempt is made to explain why some training contents seem to be quite unsuitable from the point of view of increasing strength as a basis for better performance in start, turn and clean swimming. From the above paper, it concludes that

Keywords: Swimming, respiratory rate, strength, program, design

Introduction

The respiratory system, including the airways, lungs, and blood vessels, is a structure of organs and tissues that help a person breathe. The lungs are the central organ of the respiratory system, which participates in the exchange of respiratory gases to provide oxygen to various. body tissues and removes carbon dioxide (CO_2). Continuous consideration and monitoring of breathing and circulation provides biomedical engineers with a wealth of information to understand the variables of the respiratory and circulatory systems which show how well these systems work. From a physiological point of view, respiration and circulation

are two bodily processes which suffer most during swimming and diving. This review aims to briefly examine the effects of swimming and diving of respiratory physiology, which includes the respiratory muscles. Human respiratory system and its importance in human life is well documented.

Swimming is the self-impetus of an individual through water, or a fluid substance, normally for diversion, game, exercise, or endurance. Velocity is accomplished through facilitated development of the appendages and the body. People can pause their breathing submerged and embrace simple train swimming promptly after birth, as an endurance response. Swimming is reliably among the top public sporting activities, and in certain nations, swimming exercises are a mandatory piece of the instructive curriculum. In the present research study, middle age swimmers from Shree Hanuman VyayamPrasarak Mandal's Aquatic Center, Amravati was the source of data. In the present research study, middle age swimmers who did the daily practice in Shri. H. V. P. Mandal's Swimming Pool, Amravati, was selected as subjects. The age of the selected subjects was ranging from 35 to 44 years age group.The research study was formulate as a simple random group design consisting of a pre-test and post-test. For control group no specific training was given, except their daily work. The training given as per scheduled to the experimental groups only. The training period was 60 minutes per day, 6 days in a week for 90 day's. There is a significant difference in post test means of control and experiment group. Therefore, the swimming training programme administered on experimental group improves muscular arm strength of the swimmers.

METHODOLOGY

As every research demands a systematic method and procedure, like wise this chapter adopts the following procedure including information regarding –

Sources of Data

In the present research study, middle age swimmers from Shree Hanuman VyayamPrasarak Mandal's Aquatic Center, Amravati was the source of data.

Selection of Subjects

In the present research study, middle age swimmers who did the daily practice in Shri. H. V. P. Mandal's Swimming Pool, Amravati, was selected as subjects. The age of the selected subjects was ranging from 34 to 44 years age group

Sampling Procedure

Procedure adopted for the selection of subjects was purposive sampling method.

Experimental Design

The research study was formulate as a simple random group design consisting of a pre-test and post-test

Respiratory Rate

Purpose: To measure thesubject's numberofbreaths per minute.

Equipment: Stop watch and long bench.

Procedure: The subjectwillbe placed in a laying down position onthe mat. The subject's arm will be placed in a relaxed position just like a Shavasana. Then a piece of small cad board will be placed on thestomach of the subject which will be rise and fall during the respiratorycycle. The complete respiratory cycle (consists of one inspiration andone expiration) will be observed. This ensures that the count will be begin with a normal respiratory cycle. Once a cycle was observed, the watch's second hand will be monitored and the counting the rate of respiration .When the second hand reach number on the dial, count "one" was counted to begin the first cycle.

Scoring: The number of respirations in one minute will be measure innumbers.

Analysis and Interpretation of Physiological Parameters

Analysis of Covariance (ANCOVA) for Respiratory rate of 35-44 years age group Experimental and Control Group swimmers

ANOVA table for Pre-Test (x) and Post Test (y) scores

Source of Variance	**d.f.**	**SSx**	**SSy**	**MSSx**	**MSSy**	**Fx**	**Fy**
Treatment group means	1	10.42	56.07	10.42	56.07	1.347@	7.365*
Error	58	448.57	441.53	7.74	7.61		

*Significant and @Not Significant at 0.05 Tabulated $F_{0.05(1,58)}$=4.00

It is evident from above table that, Fx =1.347 is not significant as it less than the tabulated F value 4.00, indicating the control and experimental groups are homogeneous in pre-test. But Fy = 7.365 is significant indicating in post test there is significant difference in respiratory rate level of control and experimental group.

Analysis of Covariance

Source of Variance	d.f.	SSx	SSy	SSxy	SSyx	MSSyx	Fyx
Treatment group means	1	10.42	56.07	24.17	40.40	40.40	5.855*
Error	57	448.57	441.53	147.03	393.34	6.90	

*Significant and @Not Significant at 0.05 Tabulated $F_{0.05(1,57)}$= 4.00

Since Fyx = 5.855 is greater than the tabulated F-value of 4.00 at 0.05 level for 1/57 degrees of freedom, it is obvious that the swimming training programe is not equally effective in improving the respiratory rate of control and experimental group swimmers. To find out which group is more effective, pairwise comparison analysis on adjusted means of post test data would be carried out.

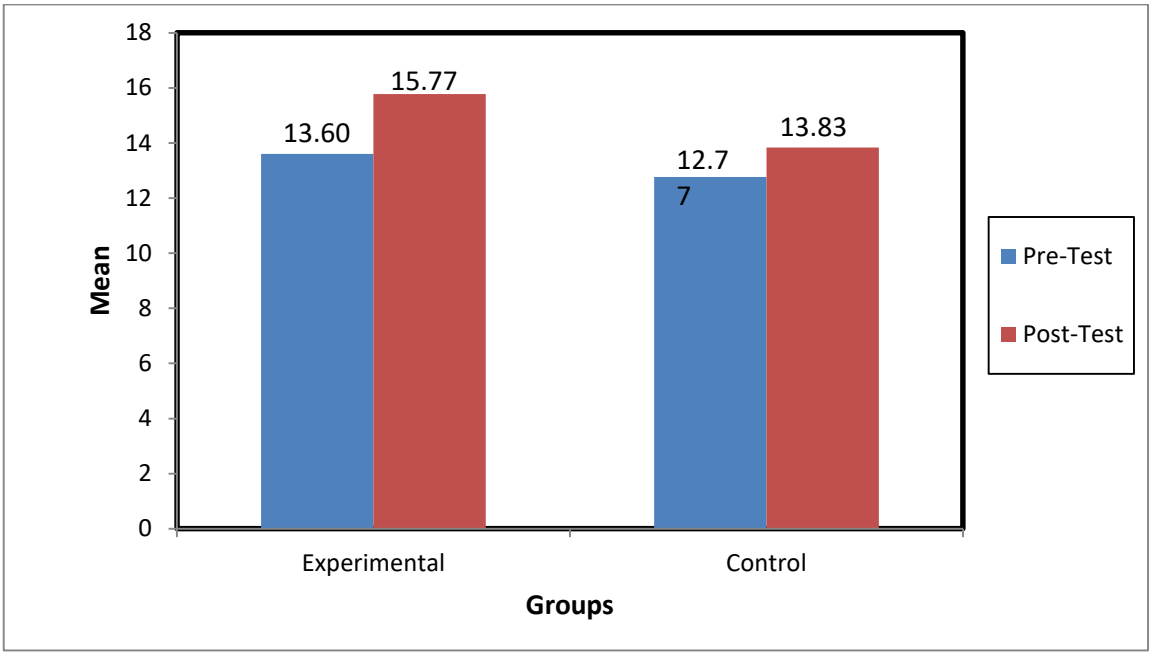
Group Means and Adjusted Final Means

Groups	Sample size	Mx	My	Mean adjusted Myx
Experimental	30	13.60	15.77	15.63
Control	30	12.77	13.83	13.97

Testing Significant of Difference among Adjusted Post Test Means of Experimental and Control Groups using LSD Test

Experimental Group	Control Group	Mean Difference	Critical Difference
15.63	13.97	1.66*	1.36

There is a significant difference in post test means of control and experiment group as MD=1.66 > CD=1.36. It is quite obvious from the above findings that the swimming training programme administered on Experimental group improves the respiratory rate of the swimmers.



Mean Difference of Respiratory rate between the Pre and Post Test of Experimental and Control Groups (35-44 years age)

Results

It is evident from above table that, Fx =1.347 is not significant as it less than the tabulated F value 4.00, indicating the control and experimental groups are homogeneous in pre-test. But Fy = 7.365 is significant indicating in post test there is significant difference in respiratory rate level of control and experimental group.

Since Fyx = 5.855 is greater than the tabulated F-value of 4.00 at 0.05 level for 1/57 degrees of freedom, it is obvious that the swimming training programe is not equally effective in improving the respiratory rate of control and experimental group swimmers. To find out which group is more effective, pairwise comparison analysis on adjusted means of post test data would be carried out.

Conclusion

The above study concludes that, there is significant difference in respiratory rate level of control and experimental group, the swimming training programme administered on Experimental group improves the respiratory rate of the swimmers.

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