

Effect of SAQ Drills on Swimming Performance

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Abstract

The Purpose of the study was to find out the effect of SAQ drills on swimming performance. 23 male swimmers (sprinters) in the age group of 14yrs – 17yrs had been selected from different schools of Delhi who had represented Delhi at National level championship conducted by Swimming Federation of India. For analysis of data, the Descriptive Statistics and Repeated Measure ANOVA were applied using SPSS (version 22). Repeated Measure ANOVA was also followed by Post hoc test to ensure the reliability of the result. On the basis of result obtained, following conclusions were drawn: It is concluded that SAQ drills has significant effect on the swimming performance of swimmers under the age of 17 years. It is further concluded that SAQ drills improves swimming performance at a constantly. It is concluded that improvement in performance have a linear pattern when exposed to SAQ drills.

INTRODUCTION

Swimming is one of the most popular recreational activities all over the world. Swimming improves the blood circulation in the body and is a great workout for all the muscles. It is a form of low impact aerobic activity and increases strength and cardiovascular stamina. Apart from being a full body exercise, it is also a great way to relax and rejuvenate. Many people swim regularly to control their weight and improve body contours. Swimming enhancing metabolism and offers to relief from the fatigue and exhaustion associated with routine life.

People of all ages, from the very young to the elderly, swim for fun. Throughout the world millions of people enjoy swimming in lakes, oceans, and rivers. Others swim in indoor or outdoor pools. Many schools recreation center, hotels and private clubs have an indoor or outdoor pool. Thousands of communities provide pools for residents. Many families even have a pool in their garden or backyard.

Swimming has been one of the earliest forms of athletic activity. The encyclopedia Britannica mentions that swimming was rated highly in the days of Greece and Rome especially for the training of warriors.

Speed, agility and quickness training has become a popular way to train athletes. Whether they are school children on a soccer field or professionals in training camp, they can all benefit from speed, agility and quickness training. This method has been around for several years, but it is not used by all athletes primarily due to a lack of education regarding the drills. Speed, agility and quickness training may be used to increase speed or strength or the ability to exert maximal forces during the high speed movements. It manipulates and capitalizes on the stretch shortening cycle while bridging the gap between traditional resistance training and functional specific movements. Some benefits of speed, agility and quickness training include increased muscular power in all multi planar movements, brain signal efficiency, kinesthetic or body spatial awareness, motor skills and reaction time.

Speed, agility and quickness training can cover the complete spectrum of training intensity from low to high intensity. Every individual will come into training program at different level, thus training intensities must coincide with individual's abilities. Low intensity speed, agility and quickness drills can be used by everyone for different application. Higher intensity drills requires a significant level of preparation. A simple approach to safe

participation and increased effectiveness is to start a concurrent strength training program when starting speed, agility and quickness training.

PROCEDURE AND METHODOLOGY

Selection of subjects

23 male swimmers (sprinters) in the age group of 14yrs – 17yrs had been selected from different schools of Delhi who had represented Delhi at National level championship conducted by Swimming Federation of India.

Experimental Design

Repeated measure design was executed where experimental group was tested for swimming performance before the start of training and after every 10 days i.e. on 10th day, 20th day, 30th day, 40th day, 50th day, 60th day and 70th day .

Administration of training program

A training programme of SAQ drills for 70 days for an experimental group was administered at Swim and Gym point, Kendriya Vidyalaya School, Janak Puri at 4.30 am to 5.30 am.

Load of training was fluctuated by different permutation and combination through different sets which has been already shown for the what is to be carried out in particular set, also been detailed, executed and presented as ready reference in following tables. The training session of SAQ drills and endurance training was conducted for 45-60 minutes with addition of 1½ to 2 hrs for swimming practice.

- i. Frequency of training was five times in 10 days
- ii. 10th day was for the performance test
- iii. The repetition and sets was progressive in nature.
- iv. Duration of selected SAQ drills and endurance training was of 45-60 minutes.

Collection of Data

In order to assess the SAQ training effect on swimming performance, the data was collected before commencement of training and then after every 10 days i.e. 10th, 20th, 30th, 40th, 50th, 60th and 70th day of start of training.

Statistical Procedure

For analysis of data, the Descriptive Statistics and Repeated Measure ANOVA were applied using SPSS (version 22). Repeated Measure ANOVA was also followed by Post hoc test to ensure the reliability of the result.

RESULT AND DISCUSSION

The data was collected from 23 swimmers, 12 from Under 17 yrs. age group and 11 from Under 14 yrs. age group from different schools. They all had represented Delhi at Senior and Junior National level championship conducted by Swimming Federation of India. SAQ drills as independent variable and Swimming Performance as dependent variable were included in the study.

Mean and SD of Under 17, Under 14 and Combined Group for Various Trials.

	Under 17		Under 14		Combined Group	
Trials	Mean	SD	Mean	SD	Mean	SD
Pre-test	64.40	3.05	69.43	3.70	66.80	4.18
10th day	64.35	2.89	69.52	3.56	66.82	4.11
20th day	63.98	2.65	69.05	3.60	66.40	4.01

30th day	63.56	2.42	68.55	3.58	65.94	3.90
40th day	63.16	2.35	68.14	3.53	65.54	3.86
50th day	62.64	2.33	67.63	3.61	65.02	3.88
60th day	62.20	2.40	67.24	3.65	64.61	3.94
70th day	61.94	2.40	66.82	3.67	64.27	3.90

Descriptive statistics for swimming performance of Senior Boys i.e. under 17 age group on different period of time i.e. Pre-test, 10th day, 20th day, 30th day, 40th day, 50th day, 60th day and 70th day of training. The mean and standard deviation value for different mentioned period was 64.40 ± 3.05 , 64.35 ± 2.89 , 63.98 ± 2.65 , 63.56 ± 2.42 , 63.16 ± 2.35 , 62.64 ± 2.33 , 62.20 ± 2.40 and 61.94 ± 2.40 respectively. The decreasing trend in timing at different point of time shows the improvement in performance. descriptive statistics for swimming performance of Junior Boys i.e. under 14 age group on different period of time i.e. Pre-test, 10th day, 20th day, 30th day, 40th day, 50th day, 60th day and 70th day of training. The mean and standard deviation value for different mentioned period was 69.43 ± 3.70 , 69.52 ± 3.56 , 69.05 ± 3.60 , 68.55 ± 3.58 , 68.14 ± 3.53 , 67.63 ± 3.61 , 67.24 ± 3.65 and 66.82 ± 3.67 respectively. The decreasing trend in timing at different point of time shows the improvement in performance. descriptive statistics for swimming performance of Senior and Junior Boys together on different period of time i.e. Pre-test, 10th day, 20th day, 30th day, 40th day, 50th day, 60th day and 70th day of training. The mean and standard deviation value for different mentioned period was observed as 66.80 ± 4.18 , 66.82 ± 4.11 , 66.40 ± 4.01 , 65.94 ± 3.90 , 65.54 ± 3.86 , 65.02 ± 3.88 , 64.61 ± 3.94 and 64.27 ± 3.90 respectively. The decreasing trend in timing at different point of time shows the improvement in performance.

Mauchly's Test of Sphericity for Swimming Performance

	Approx. Chi-Square	df	Sig.	Epsilon ^b		
				Greenhouse-Geisser	Huynh-Feldt	Lower-bound
UNDER 17	123.125	27	0.00	0.217	0.244	0.143
UNDER 14	72.847	27	0.00	0.412	0.596	0.143
OVERALL	158.265	27	0.00	0.267	0.291	0.143

The table contains the test for sphericity which was found significant ($P=0.00$) at 0.05 level. The Mauchly's test indicated that the assumption of sphericity has been violated, $\chi^2(27) = 123.125$, $p = 0.00$ for under 17 group, $\chi^2(27) = 72.847$, $p = 0.00$ for under 14 group and $\chi^2(27) = 158.265$, $p = 0.00$ for combined group. Here, it validates the statistical test i.e. Repeated Measure Analysis of Variance (ANOVA). The result found here shows that the variances of the difference between all combinations of groups are equal. Unfortunately, this means we cannot rely individually on the test above. As the sphericity of the test has violated, it need to be corrected by making appropriate adjustment to the degree of freedom of the F-test.

F-test for Swimming Performance

	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Under 17	Intercept	384461	1	384461	7446.34	0	0.999
	Error	567.94	11	51.631			

Under 14	Intercept	410463	1	410463	3943.33	0	0.997
	Error	1040.91	10	104.09			
Overall	Intercept	793770	1	793770	6321.64	0	0.997
	Error	2762.41	22	125.564			

F-test calculation for Swimming Performance of subjects belonging to Under 17, Under 14 and combined group has been presented. Here, the result obtained was significant with F-value 7446.338 as its p-value = 0.00 (< 0.05). Similarly, for under 14 age group, the F-value was 3943.325 as its p-value = 0.00 (< 0.05) and for overall group, it represented the F-value 6321.639 as its p-value = 0.00 (< 0.05). all the F-values represented the statistically significant difference in Swimming Performance following specific training programme i.e. SAQ drills. As the result was statistically significant, its post hoc calculation was also done and it was found that the performance of subjects starts improving significantly after 30 days of specific training. Earlier, slight improvement was observed but that was not enough to rely upon.

The first objective of the research was to study the effect of specific SAQ Drills training program on Swimming Performance of Delhi State Under 17 Swimmers. Specific SAQ drills was experimented on selected subjects (N = 12) for the duration of 70 days. One way Repeated Measure ANOVA was applied on the swimming performance of Under 17 experimental group that has shown significant improvement with F-value = 7446.338 The authenticity of the result was established by calculating Post hoc for the same. In the result, it was found that the specific SAQ drills training program leads to significant improvement in swimming performance of Under 17 boys swimmers.

The similar result was found in the case of Under 14 boys swimmers as well. It was the second objective of the research to study the effect of specific SAQ Drills training program on Swimming Performance of Delhi State Under 14 Swimmers. There were total 11 numbers of swimmers in this experimental group. The same statistical test was applied to assess the effect of training program on performance i.e. One way Repeated Measure ANOVA and the significant improvement in performance was observed with F= 3943.325 Again, the post hoc comparison was made in order to authenticate the result which confirm the positive improvement in result due to specific SAQ training program.

The third objective was to study the effect of specific SAQ Drills training program on Swimming Performance of Delhi State Swimmers (Under 17 and Under 14 collectively). The data collected against their performance at different interval was analysed by One way Repeated Measure ANOVA. The obtained F = 6321.639 shown the significant improvement in swimming performance of all the swimmers. This result further proved reliable by conducting post hoc comparison. The finding proves that designed SAQ drills training program improves swimming performance. Hence, the third objective of the research obtained as well.

Forth objective of the research was to observe the improvement pattern of Swimming Performance of Delhi State Under 17 Swimmers following a Specific SAQ Drills training program. In order to obtain pertained result, within subject contrast test was conducted in which the trend of improvement in swimming performance was observed as linear. The swimming performance of subjects decreased after 10 day of training. Thereafter, there was a constant improvement in performance which indicates the efficiency of the SAQ drills.

To observe the improvement pattern of Swimming Performance of Delhi State Under 14 Swimmers following a Specific SAQ Drills training program was the fifth objective of the research. Similar to the case of previous objective, a linear trend in improvement of

performance was observed here as well. The results clearly shows the constant and linear improvement in performance throughout the course of training.

The sixth objective was to observe the improvement pattern of Swimming Performance of Delhi State Under 17 & Under 14 Swimmers (collectively) following a Specific SAQ Drills training program. The objective of the research was met after conducting within subject contrast test where it was ensured that the improvement in swimming performance of all subjects have a linear tendency following specific SAQ drills training program. The improvement was constant and uniform throughout the training period.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of result obtained and discussion were made on findings, following conclusions were drawn:

- It is concluded that SAQ drills has significant effect on the swimming performance of swimmers under the age of 17 years.
- It is further concluded that SAQ drills improves swimming performance at a constantly.
- It is concluded that improvement in performance have a linear pattern when exposed to SAQ drills.

Above mentioned conclusions and finding has revealed many facts and filled the gap in information available regarding SAQ drills effect on swimming performance. Now, following recommendations are made with future research perspective:

- SAQ drills can be included in the training schedule of swimmers.
- Similar study can be taken on different Gender by same method.
- Similar study can also be taken on various Age groups by same method.
- Similar study can be conducted by adopting some different types of exercises.
- Similar study can be conducted on different Sports/Games.
- A similar study can be conducted to compare the effect of SAQ drills on different age group.
- Further, similar study can be taken upon comparison of effect of SAQ drills on Male and Female.
- A research can be conducted to specify the types of exercise that have significant effect on the performance of swimmers only.

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