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Effect of SAQ training on selected physiological parameters among university men students

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Abstract
The purpose of the study was to find out the effect of SAQ training on selected physiological parameters. To achieve this purpose of the study, thirty university men studying in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalainagar, Chidambaram, Tamilnadu, India were selected as subjects at random. The selected subjects were divided into two equal groups of fifteen subjects each, such as SAQ training group and control group. The group I underwent SAQ training for three days per week for twelve weeks. Group II acted as control who did not participate any special training programmes apart from their regular activities as per their curriculam. The following physiological variables namely resting pulse rate and breath holding time were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance (ANCOVA) was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the "F" ratio obtained by the analysis of covariance, which was considered as an appropriate. The results of the study revealed that there was a significant difference among SAQ training group and control group on selected physiological parameters namely resting pulse rate and breath holding time. And also it was found that there was a significant change on resting pulse rate and breath holding time due to SAQ training.

Keywords: SAQ training, physiological parameters, resting pulse rate, breath holding time

1. Introduction
SAQ is a system of training aimed at the development of motor abilities and the control of body movement through the development of the neuromuscular system. It aims to improve the athlete's ability to perform explosive multi-directional movements by reprogramming the neuromuscular system to work effectively. SAQ stands for speed, agility and quickness, which are basic fundamentals for athletic performance. SAQ training consists of short, intense drills that involve quick acceleration and deceleration while moving backward, forward or side-to-side. SAQ training improves balance, power and neuromuscular firing patterns.

SAQ training improves response time and ability to change direction quickly. SAQ training aids in the performance of any sport, but it is especially useful for those that are quick-paced and require fast movement such as tennis, soccer or basketball. It also improves spatial awareness and reinforces the connection between the body's muscles and brain. The central nervous system sends messages to a muscle's motor units to work together with the muscle fibers, making muscles stronger. Because of the strain it puts on the central nervous system and muscles, SAQ training requires a recovery period of 72 to 96 hours.

2. Methodology
The purpose of the study was to find out the effect of SAQ training on selected physiological parameters. To achieve this purpose of the study, thirty university men studying in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalainagar, Chidambaram, Tamilnadu, India were selected as subjects at random. The selected subjects were divided into two equal groups of fifteen subjects each, such as SAQ training group and control group. The group I underwent SAQ training for three days per week for twelve weeks. Group II acted as control who did not participate any special training programmes apart from their regular activities as per their curriculam.

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2.1. Training Programme

The SAQ training group underwent their training programme as three days per week for twelve weeks. Training was given in the morning session. The training session includes warming up and limbering down. Every day the workout lasted for 45 to 60 minutes approximately. The subjects underwent their training programmes as per the schedules under the strict supervision of the investigator. During experimental period control group did not participate in any of the special training.

2.2. Analysis of the Data

The influence of SAQ training on resting pulse rate and breath holding time were analyzed and presented below.

The analysis of covariance on resting pulse rate of pre and post tests for SAQ training group and control group was analysed and presented in Table I.

Table I: Ancova on Resting Pulse Rate of Pre and Post Test for SAQ Training Group and Control Group

test	SAQ Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	70.53	70.40	Between	0.13	1	0.13	0.06
S.D.	1.45	1.53	Within	65.33	28	2.33	
Post Test							
Mean	68.33	70.27	Between	28.03	1	28.03	8.15*
S.D.	1.50	1.48	Within	96.30	28	3.44	
Adjusted Post Test							
Mean	68.27	70.33	Between	31.87	1	31.87	141.19
			Within	6.09	27	0.23	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively).

The table I shows that pre-test means on resting pulse rate of SAQ training group and control group are 70.53 and 70.40 respectively. The obtained "F" ratio of 0.06 for pre -test means is less than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on resting pulse rate. The post-test means on resting pulse rate of SAQ training group and control group are 68.33 and 70.27 respectively. The obtained "F" ratio of 8.15 for post-test means is more than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on resting pulse rate.

The adjusted post-test means on resting pulse rate of SAQ training group and control group are 68.27 and 70.33 respectively. The obtained "F" ratio of 141.19 for adjusted post-test means is more than the table value of 4.21 for df 1 and 27 required for significance at .05 level of confidence on resting pulse rate.

The results of the study indicated that there was a significant difference between the adjusted post-test means of SAQ training group and control group on resting pulse rate.

The pre, post test mean values of SAQ training group and control group on resting pulse rate were graphically represented with Figure I.

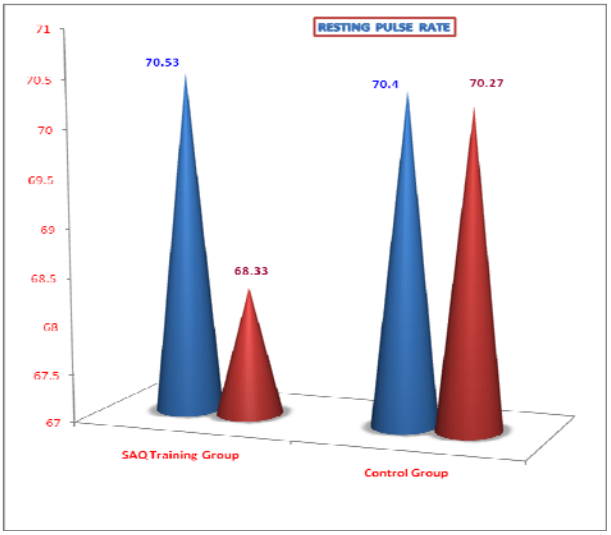

Fig 1: pre and post test data on resting pulse rate

The analysis of covariance on breath holding time of pre and post tests for SAQ training group and control group was analysed and presented in Table II.

Table II: Ancova on Breath Holding Time of Pre and Post Test for SAQ Training Group and Control Group

Test	SAQ Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	36.73	36.47	Between	0.53	1	0.53	0.49
S.D.	1.00	1.14	Within	30.67	28	1.10	
Post Test							
Mean	41.67	36.80	Between	177.63	1	177.63	23.76*
S.D.	1.02	0.91	Within	209.37	28	7.48	
Adjusted Post Test							
Mean	41.57	36.90	Between	160.50	1	160.50	301.29*
			Within	14.38	27	0.53	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively).

The table II shows that pre-test means on breath holding time of SAQ training group and control group are 36.73 and 36.47 respectively. The obtained "F" ratio of 0.49 for pre -test means is less than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on breath holding time. The post-test means on breath holding time of SAQ training group and control group are 41.67 and 36.80 respectively. The obtained "F" ratio of 23.76 for post-test means is more than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on breath holding time.

The adjusted post-test means on breath holding time of SAQ training group and control group are 41.57 and 36.90 respectively. The obtained "F" ratio of 301.29 for adjusted post-test means is more than the table value of 4.21 for df 1 and 27 required for significance at .05 level of confidence on breath holding time.

The results of the study indicated that there was a significant difference between the adjusted post-test means of SAQ training group and control group on breath holding time.

The pre, post test mean values of SAQ training group and control group on breath holding time were graphically represented with Figure II.

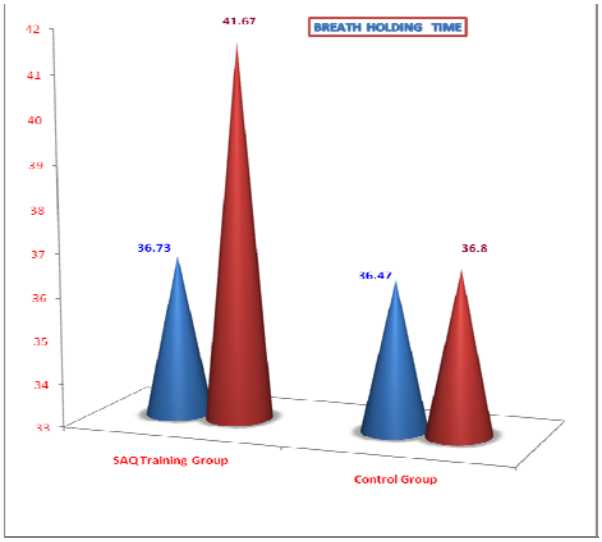

Fig 2: Pre and Post Test Data on Breath Holding Time

3. Results

1. There was a significant difference between SAQ Training group and control group on resting pulse rate.
2. There was a significant difference between SAQ Training group and control group on breath holding time.
3. There was a significant change on selected criterion variables namely resting pulse rate and breath holding time due to twelve weeks of SAQ Training.

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