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Effect of SAQ training and interval training on selected physical fitness variables among men handball players

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Abstract
The purpose of the study was to find out the effect of SAQ training and interval training on selected physical fitness variables among men handball players. To achieve the purpose of the study forty five handball players were selected on random bases from the college located at Chennai city. Their age were ranged between 18 and 24 years. They were divided in to three equal groups (two experimental and one control group) the experimental group I was given SAQ training and experimental group II was given interval training for six weeks and control group was not allowed to participate in any training programme. Pretest was conducted on selected dependent variables such us speed, agility and quickness at the beginning before the experimental treatment and posttest was taken after the experimental treatment. The data were analyzed by applying ANCOVA. The result revealed that the SAQ training and interval training had significantly improved the speed, agility and quickness of the men handball players.

Keywords: SAQ training, interval training, speed, agility, quickness

Introduction
SAQ Training
The SAQ training method is an easily coachable method of training, it relies on the athlete being coached the correct technique for the movements. SAQ is a programme of progressive exercises which could develop the basic motor abilities of the athlete enhancing their capabilities of completing skills at faster speeds with greater accuracy. SAQ training has been found to capitalize on the stretch-shortening cycle (SSC), as well as plug the gap between traditional resistance training and specific sporting movements. Some of the benefits of SAQ include increased muscular power, brain signal efficiency, kinesthetic spatial awareness, motor skills and reaction time.

Interval Trianing
One method of training that allows appropriate metabolic systems to be stressed is interval training. Interval training is based on the concept of more work which can be performed at higher exercise intensities with the same or less fatigue compared to continuous training. The theoretical metabolic profile for exercise and rest intervals stressing aerobic metabolism, fast glycolysis, and the phosphagen system is based on the knowledge of which energy system predominates during exercise and time of substrate recovery.

Hypotheses
It was hypothesized that there would be significant difference among SAQ training, interval training groups, control group on selected physical fitness variables such us speed, agility, quickness.

Delimitations
1. The study was restricted to 45 handball players.
2. The age of subjects was ranged 18 to 24 years.
3. The duration of training was restricted to 6 weeks.

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Limitations
1. Factors like habit, life style, daily routine work, climatic conditions etc., will not be taken in to consideration.
2. The subject's previous experience in the game of football will not be considered.

Methodology
The purpose of the study was to examine the effect of SAQ training and interval training on selected physical fitness variables among handball players. To achieve the purpose of the study 45 handball players will be selected on random bases from the college located at Chennai city. The subjects will be divided in to three equal groups of 15 each and designated as control and experimental groups. Their age will be ranged between 18 and 24 years. Group one acted as experimental group one and Group two acted as experimental group two and group three acted as control group. Group three underwent their routine work, group one underwent core board training exercises group II underwent staircase training for a period of six weeks. The data pertaining to the variables in this study were examined analysis of covariance (ANCOVA) for each variables separately in order to determine the difference and tested at 0.05 level of significance and post hoc test also administered whenever 'f' ratio was significant.

Results on Speed

Table 1: Computation of Analysis of Covariance SAQ Training Group, Interval Training and Control Group on Speed

	SAQ Training group	Interval Training group	Control group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	7.11	7.16	7.12	Between	0.0	2	0.01	0.20
				Within	0.9	42	0.03	
Post Test Mean	6.85	6.86	7.10	Between	0.4	2	0.20	8.74*
				Within	0.6	42	0.02	
Adjusted Post Test Mean	6.86	6.84	7.11	Between	0.4	2	0.22	19.41*
				Within	0.3	41	0.01	

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.22,
*Significant at 0.05 level.

The Table 1 shows that the pretest means of experimental group I, experimental II, and control group were 7.11, 7.16 and 7.12 respectively, the obtained F value on the scores of pretest means 0.20 was less than the required table of 3.22 value, which proved that the random assignment of the subjects were successful and their scores in speed before the training were equal and there was no significant differences at 0.05 level. The posttest means of experimental I and experimental II and control group were 6.85, 6.86 and 7.10 respectively, the obtained F value on posttest means was 8.74 which was greater than the required table value of 3.22 the study was significant at 0.05 level. The adjusted posttest mean of experimental group I, experimental group II, and control group were 6.86, 6.86 and 7.11 respectively, the obtained F value 19.41 was greater than the required table value of 3.22 and hence it was accepted that there was significant differences among the treated groups at 0.05 level.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 2

Table 2: Scheffe's Confidence Interval Test Scores on Speed

Means				Required. CI
SAQ Training group	Interval Training Group	Control group	Mean Difference	
6.86	6.84		0.02	0.12
6.86		7.11	0.24*	0.12
	6.84	7.11	0.26*	0.12

* Significant at 0.05

The scheffe's post hoc analysis of obtained ordered adjusted means proved that I there was significant differences existed between SAQ training and interval training group II there was no significant differences existed between SAQ training and control group and III there was significant difference between interval training group and control group on speed.

Results on Agility

Table 3: Computation of Analysis of Covariance SAQ Training Group, Interval Training and Control Group on Agility

	SAQ Training	Interval Training	Control	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	10.78	10.75	10.94	Between	0.22	2	0.11	0.56
				Within	5.37	42	0.20	
Post Test Mean	10.43	10.35	10.91	Between	1.83	2	0.91	4.88*
				Within	5.06	42	0.19	
Adjusted Post Test Mean	10.46	10.39	10.84	Between	1.11	2	0.56	4.46*
				Within	3.24	41	0.12	

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.22
*Significant at 0.05 level.

The Table 3 shows that the pretest means of experimental group I, experimental II, and control group were 10.78, 10.75 and 10.94 respectively, the obtained F value on the scores of pretest means 0.56 was less than the required table of 3.22

value, which proved that the random assignment of the subjects were successful and their scores in speed before the training were equal and there was no significant differences at 0.05 level. The posttest means of experimental I and experimental II and control group were 10.43, 10.35 and 10.91 respectively, the obtained F value on posttest means was 4.88 which was greater than the required table value of 3.22 the study was significant at 0.05 level. The adjusted posttest mean of experimental group I, experimental group II, and control group were 10.46, 10.39 and 10.84 respectively, the obtained F value 4.46 was greater than the required table value of 3.22 and hence it was accepted that there was significant differences among the treated groups at 0.05 level. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 4

Table 4: Scheffe's Confidence Interval Test Scores on Agility

Means				Required. CI
SAQ Training group	Interval Training group	Control group	Mean Difference	
10.46	10.39		0.06	0.40
10.46		10.84	0.38	0.40
	10.39	10.84	0.45*	0.40

* Significant at 0.05 level

The scheffe's post hoc analysis of obtained ordered adjusted means proved that I there was no significant differences existed between SAQ training and control group II there was significant differences existed between interval training and control group and III there was no significant difference between SAQ training and interval training on agility.

Results on Quickness

Table 5: Computation of Analysis of Covariance Saq Training Group, Interval Training and Control Group on Quickness

	SAQ Training	Interval Training	Control	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	5.75	5.75	5.77	Between	0.005	2	0.002	0.16
				Within	0.942	42	0.01	
Post Test Mean	5.65	5.63	5.72	Between	0.076	2	0.03	3.45*
				Within	0.967	42	0.01	
Adjusted Post Test Mean	5.66	5.64	5.70	Between	0.048	2	0.02	4.54*
				Within	0.301	41	0.005	

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.22
*Significant at 0.05 level.

The Table 5 shows that the pretest means of experimental group I, experimental II, and control group were 5.75, 5.75 and 5.77 respectively, the obtained F value on the scores of pretest means 0.16 was less than the required table of 3.22 value, which proved that the random assignment of the subjects were successful and their scores in speed before the training were equal and there was no significant differences at 0.05 level. The posttest means of experimental I and experimental II and control group were 5.65, 5.63 and 5.72 respectively, the obtained F value on posttest means was 3.45 which was greater than the required table value of 3.22 the study was significant at 0.05 level. The adjusted posttest mean of experimental group I, experimental group II, and control group were 5.66, 5.64 and 5.70 respectively, the obtained F value 4.54 was greater than the required table value of 3.22 and hence it was accepted that there was significant differences among the treated groups at 0.05 level.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 6

Table 6: Scheffe's Confidence Interval Test Scores on quickness

Means				Required. CI
SAQ Training group	Interval Training group	Control group	Mean Difference	
5.66	5.64		0.04	0.05
5.66		5.70	0.06*	0.05
	5.64	5.70	0.02	0.05

* Significant at 0.05 level

The Scheffe's post hoc analysis of obtained ordered adjusted means proved that I there was no significant differences existed between SAQ training and interval training group II there was significant differences existed between SAQ group and control group and III there was no significant difference between control group and interval training on quickness.

Conclusion
1. It was concluded that there was a significant improvement on speed due to SAQ and Interval training among Handball players.
2. It was concluded that there was a significant improvement on agility due to SAQ and Interval training Handball players.
3. It was concluded that there was a significant improvement on quickness due to SAQ and Interval training Handball players.

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