

Effect of SAQ Training and Circuit Training on Muscular Endurance among Hockey Men Players

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Abstract – The present study was undertaken to analyze the effect of speed agility and quickness [SAQ] training and circuit training on muscular endurance among hockey players. The investigator has selected N=36 men inter collegiate level/state level participated hockey players at random from various college of Guntur district of Andhra Pradesh. Their age ranged from 18-25 years. The hockey players chosen for the study were divided into three equal groups n=12 and designated as experimental group 'A' experimental group 'B' and control group 'C'. SAQ training were given to group 'A' Circuit training were given to group 'B' and the 'CG' control group 'C' were restricted to participate in any activities. The trainings were given for a period of twelve weeks. The data were collected before and after the training by conducting bent knee sit up test. The obtained data's were analyzed by Analysis of Covariance (ANCOVA). The level of significant was fixed at 0.05 levels. The results of the study showed that SAQ is training and circuit training significantly improved muscular endurance performance of the hockey players when comparative with control group. Circuit training group hockey players shown better performance when comparison with SAQ training group hockey players.

Keywords: – SAQ Training, Circuit Training – Muscular Endurance.

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INTRODUCTION

SAQ training popular way train athletes to improve speed, agility and quickness. The benefit of SAQ training to increase speed, strength, maximal forces, high speed movements, muscular power, motor skill, reaction time, brain signal efficiency, acceleration, kinaesthetic awareness. In hockey game hockey players involve in straight run, turning and zig zag run [Gurvir and Baljeet 2017]. The circuit training format utilizes a group of 6 to 10 strength exercises that are completed one exercise after another. Each exercise is performed for a specified number of repetitions or for a given time period before moving to the next exercise. (Shyam Anand 2017).

Muscular endurance is the capacity of the muscle to with stand the power produced during activity is called endurance. It depends mostly on the supply of nutrition to the muscle. Most important nutritive substance for the muscle is glycogen. This is actually stored in the muscle before the beginning of the activity. More amount of glycogen can be stored in the muscles if a person takes diet containing more carbohydrates than the diet containing fat or mixed

diet. Followings the amount of glycogen stored in the muscle in persons taking different diets High carbohydrate diet : 40g/kg muscles, mixed diet : 20g/kg muscle and high fat diet: 6 g/kg muscle (Sembulingam and Prema Sembulingam 2017).

STATEMENT OF THE PROBLEM:

The purpose of the study was to investigate the "Effect of SAQ training and circuit training on muscular endurance among men hockey players.

HYPOTHESIS:

- It was hypothesis that there will be a significant improvement in muscular endurance after the twelve weeks of training in SAQ training group hockey player and circuit training group hockey players when compared with control group hockey players.

- It was hypothesis that circuit training group hockey players will be superior than the SAQ training group hockey player.

Which are higher than the tabulated value. Since the obtained 'F' ratio is found significant.

METHODOLOGY:

The purpose of this study was to find out the effect of SAQ training and circuit training on muscular endurance among hockey men players. To achieve the purpose of this study investigator has selected N=36 men inter collegiate level and state level participate hockey players at random from various college of Guntur district of Andhra Pradesh .Their age ranged from 18-25 years. The subjects chosen for study was divided into three groups each groups consisted of twelve hockey players and designated as experimental group 'A' experimental group 'B' and control group 'C'. Speed agility and quickness [SAQ] training were given to group 'A' circuit training were given to group 'B' and control group 'C' was restricted to participate in any of the training programme other than their regular activities.

Training was given three days in a week for twelve weeks to SAQTG and CTG hockey players. The subject were tested on muscular endurance at the beginning (Pre-test) and at the end of the experimental period (Post-test). To measure the muscular endurance bent knee sit-ups test were used respectively because of their simplicity and availability of necessary facilities, instrument and equipment's. The analysis of data on sit-ups data have been examine by ANCOVA in order to determine the differences if any among the group at pre and posttest.

Table – I

Analysis of Covariance for muscular endurance on Pre Test and Post Test Data of Experimental groups and Control Groups hockey players (In Numbers)

Tests	SAQTG	CTG	CONG	Source of variance	Sum of Squares	df	Mean Squares	'F' Ratio
Pre Test Mean SD	28.41 5.56	28.41 6.47	27.50 8.05	B W	6.72 1514.83	2 33	3.36 45.90	.073*
Post Test Mean SD	36.33 6.69	45.16 7.28	26.58 7.24	B W	2073.72 1653.25	2 33	1036.86 50.09	20.69*
Adjusted Post Test Mean	36.04	44.88	27.15	B W	1878.72 324.02	2 32	939.36 10.12	92.77*

**Significant at 0.05 level of confidence
(Required table value at 0.05 level of significant with df 2 and 33 is 3.29 and df 2 and 32 is 3.30)*

The above table-I shows that there is a significant difference on muscular endurance among the three groups such as speed agility and quickness group (SAQTG), circuit training group (CTG) and control group (CONG). Since the calculated 'F' value required being significant at 0.05 level for 2, 33 d/f and 2, 32 are 3.29 and 3.30, but the calculated values of muscular endurance post and adjusted posttest 'F' values are 20.69 and 92.77 respectively.

Table – II

The Scheffes Test for the Mean Differences Between Paired Mean of Groups on Muscular endurance

Mean Values			Mean Difference	CI
SAQTG	CTG	CONG		
36.04	44.88	-	8.84*	1.91
36.04	-	27.15	8.89*	
-	44.88	27.15	17.73*	

**Significant at 0.05 level of confidence*

The above table II shows that the adjusted post-test mean differences values between speed agility and quickness [SAQ] training group and circuit training group (CTG), Speed agility and quickness [SAQ] training group and control group (CONG), circuit training group (CTG) and control group (CG), were 8.84, 8.89 and 17.73 respectively on muscular endurance, which were greater than the required confidence interval value 1.91 at 0.05 level of confidence. It was concluded from the above table that the two experimental groups were found to be significant when compared with control group.

The graphical illustration of the pre-test, post-test and adjusted post-test mean values of the experimental groups and control group on muscular endurance were presented in figure 1.

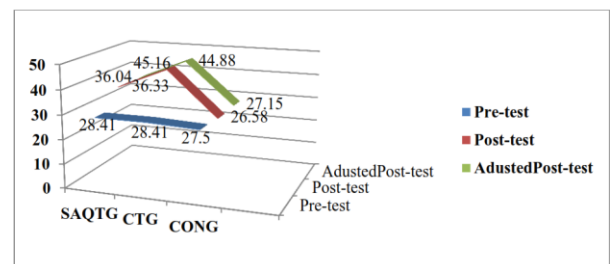


Figure 1: Graphical Illustration Showing the Pre-Test Post-Test and Adjusted Post-Test Mean Values on muscular endurance

DISCUSSION ON HYPOTHESIS:

- In the first hypothesis it was stated that SAQ training and circuit training will significantly improve muscular endurance of hockey players when comparison with control group. The result of the study found that experimental groups hockey players muscular endurance performance level improved when compared with control group. Hence the research hypothesis is accepted.
- In second hypothesis mention that circuit training group hockey player will be

superior to the SAQ training groups in muscular endurance performance. The study found that CTG hockey players given best performance when comparison with SAQ training group hockey players. Hence research hypothesis accepted.

DISCUSSION AND FINDINGS:

The result of the study reveals that after the twelve weeks of speed agility and quickness (SAQ) training and circuit training significantly enhanced the muscular endurance performance level of hockey players. The finding of the study is aligned with the following studies Atul and Harry (2015) study result indicated that plyometric training and Speed agility and quickness [SAQ] training has significant effect to improve muscular endurance of the soccer players. Shiv et al., (2016) study approved that speed, agility and quickness [SAQ] training and circuit training beneficial to increase the performance of abdominal, arms & shoulder endurance among basketball players. Daniel et al., (2013) study proved that circuit training exercise program is an effective to increase the performance and maintenance of muscular endurance. Parul (2015) study concluded that 6-weeks physical fitness workout improved the muscular endurance of the hockey players.

CONCLUSIONS:

The result of this study concluded that circuit training group hockey players [CTG] shown better enhancement in muscular endurance performance when compared with speed agility and quickness [SAQ] training group hockey players.

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