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INVESTIGATION OF SAQ TRAINING VERSES SPRINT INTERVAL TRAINING IMPACT ON BASKETBALL THROW FOR ACCURACY OF MEN BASKETBALL PLAYERS

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Abstract

The objective of the present investigation is to study the impact of SAQ training method vs sprint interval training method on basketball throw for accuracy of basketball players (men). To perform this study, forty five male inter-collegiate level basketball players from various colleges affiliated to Achariya Nagarjuna University, Andhra Pradesh, India were selected as subjects. Their age ranged from 18 years to 24 years. The selected subjects were divided into three equal groups of 15 subjects each. Group-1 received SAQ training, 2nd group received sprint interval training and 3rd group represented as control. This investigation was designed pre and post test on Basketball Throw for Accuracy. The result from all these groups prior to and post experimentation on Basketball Throw for Accuracy was statistically examined to determine the significance between the groups by ANCOVA. The Scheffe's test is used as post hoc assessment to examine the paired mean variances. The observation of this investigation reveals that due to the effect of SAQ training and sprint interval training the basketball throw for accuracy of the subjects was significantly improved. It was also concluded that sprint interval training is better than SAQ training method in improving basketball throw for accuracy of basketball players (men).

***Keywords**: SAQ training, sprint interval training, Basketball Throw for Accuracy.*

INTRODUCTION

Designed for the longest time a lot of the training done for *basketball* have been centered around aerobic conditioning, while overlooking important aspects like, *strength, speed and power, agility and flexibility.* SAQ and sprint interval training for any sport is vital to the overall success of the players. With a good foundation to build on, players fully prepared to move into building maximal speed.

The benefit of SAQ and sprint interval training is not only to provide the players with the necessary skills and strength but also help to keep them intact for the entire session of the play.SAQ training is fast becoming the most popular exercise in the world today.

Even in the sports world, many players and coaches did not emphasize the importance of SAQ training if their particular sport did not require them to have high levels of muscular power in order to be competitive. However, in recent years the amount of information and research on SAQ training has exploded.

Players of all types, from the professional to the weekend enthusiast now understand the potential benefits of partaking in SAQ training program. SAQ training program should be tailored to meet the needs and goals of the players and should incorporate a variety of exercises performed at a sufficient intensity to enhance the development and maintenance of game performance.

A number of training programs have been successful in bridging the gap between the physical and performance improvement. From the availability of the literatures it was observed that the SAQ training program are improved the physical qualities of athletes and players. When properly performed, SAQ training can provide significant functional benefits and improvement in overall health and well-being.

Many elite athletes attribute their success to interval training with the spacing of exercise and rest periods, a tremendous amount of work can be accomplished that would not normally be completed in a workout in which the exercise was performed continuously. Repeated exercise bouts can vary from a few seconds to several minutes or more depending on the desired outcome.

The interval training prescription can be modified in terms of intensity and duration of the exercise interval, the length and the type of relief interval, the number of work intervals and the number of repetitions and sets per workout. Adjustment of any or all of these can easily be made to the specific requirement for different performance.

Interval training permits high intensity and intermittent exercise for a relatively long period (McArdle, Katch, and Katch, 1991). Among sport conditioning coaches, there is considerable discussion regarding the efficiency of training methods that improve skill performance of players. But the best method for achieving improvement in skill performance of basketball players is disputed.

SAQ training and sprint interval training are well-established training method and vital necessary for athletes and players; however, there is a lack of information regarding SAQ training and sprint interval training impact. The present scientific study is one of the efforts to explore and suggest a best scientific method for the development of skill performance of basketball players.

METHODOLOGY

Selection of Subject and Variable

To achieve the purpose of the study, forty five male inter-collegiate level basketball players from various colleges affiliated to Acharya Nagarjuna University, Andhra Pradesh, India were selected as subjects. The basketball players who represented inter collegiate level competitions are only selected as subjects. Their age, height and weight ranged from 18 years to 24 years, 168 cm to 177 cm, 58 kg to 76 kg respectively. The selected subjects were randomly assigned into three equal groups of 15 subjects each. Group-I underwent SAQ training, Group-II underwent sprint interval training and group-III acted as control.

The selected dependent variable basketball throw for accuracy was assessed by using Johnson basketball skill test procedure. Training Programme after the initial measurements the specially designed training programme was given to the subjects of the experimental groups named as SAQ (speed, agility and quickness) and sprint interval training. The training sessions were conducted three days a week i.e.

(Monday, Wednesday, and Friday) over a period of twelve weeks. Each experimental session was of 30-45 minutes duration excluding warm-up and warm-down. The SAQ training was administrated to the experimental group, which include speed, agility, and quickness drills. The experimental group undertook three SAQ training sessions a week. Sessions were progressively structured to gradually increase intensity over each of the 12 weeks.

To fix the training load for the sprint interval groups the subjects were examined for their exercise heart rate in response to different work bouts, for proposed repetitions and sets, alternating with active recovery based on work-rest ratio. The subject's training zone was computed using Karvonen formula and it was fixed at 70%HRmax to 95%HRmax for sprint interval training.

Collection of the Data

The pretest data was collected prior to the training programme and posttest data was collected immediately after the twelve weeks of SAQ training and sprint interval training, from the experimental groups and a control group.

Statistical Technique

The data collected from the three groups prior to and post experimentation on selected dependent variable was statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA).

Since three groups are involved, whenever the obtained 'F' ratio value was found to be significant for adjusted post test means, the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases the level of confidence was fixed at 0.05 for significance.

RESULT

The pre and post test data collected from the experimental and control groups on basketball throw for accuracy is statistically analyzed by analysis of covariance and the results are presented in table–I.

Table-I Analysis of Covariance on Basketball Throw for Accuracy of Experimental and Control Groups

	SAQ Training Group	Sprint Interval Training Group	Control Group	S o V	Sum of Squares	df	Mean Squares	'F' ratio
Pre test Mean	22.13	21.33	22.67	B	13.51	2	6.76	0.69
	3.46	2.99	2.92	W	412.40	42	9.82	
Post test Mean	26.40	27.07	23.73	B	93.333	2	46.667	4.79*
	3.18	3.58	2.52	W	409.467	42	9.749	
Adjusted Post test	26.33	27.65	23.22	B	150.413	2	75.206	23.25*
				W	133.209	41	3.249	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 42 is 3.23 and degree of freedom 2 and 41 is 3.22)

**Significant at .05 level of confidence*

Table-4.9 shows that the pre-test means and standard deviation on basketball throw for accuracy of SAQ training, sprint interval training and control groups are 22.13 $\pm$ 3.46, 21.33 $\pm$ 2.99 and 22.67 $\pm$ 2.92 respectively. The obtained 'F' ratio value 0.69 of basketball throw for accuracy is less than the required table value of 3.23 for the degrees of freedom 2 and 42 at 0.05 level of confidence, which proved that the random assignment of the subjects were successful and their scores in basketball throw for accuracy before the training were equal and there was no significant differences.

The post-test means and standard deviation on basketball throw for accuracy of SAQ training, sprint interval training and control groups are 26.40 $\pm$ 3.18, 27.07 $\pm$ 3.58 and 23.73$\pm$ 2.52 respectively. The obtained 'F' ratio value 4.79 of basketball throw for accuracy is greater than the required table value of 3.23 for the degrees of freedom 2 and 42 at 0.05 level of confidence. It implies that significant differences

existed between the three groups during the post test period on basketball throw for accuracy.

The adjusted post-test means on basketball throw for accuracy of SAQ training, sprint interval training and control groups are 26.33, 27.65 and 23.22 respectively. The obtained 'F' ratio value 23.25 of basketball throw for accuracy is greater than the required table value of 3.22 for the degrees of freedom 2 and 41at 0.05 level of confidence.

Hence, it is concluded that significant differences exist between the adjusted post test means of SAQ training, sprint interval training and control groups on throw for accuracy.

Since, the obtained 'F' ratio value in the adjusted post test means is found to be significant, the Scheffe'S test is applied as post hoc test to find out the paired mean difference, and it is presented in table-II.

Table –II Scheffe's Post Hoc Test for the Differences among Paired Means of Experimental and Control Groups on Basketball Throw for Accuracy

SAQ Training Group	Sprint Interval Training Group	Control Group	Mean Difference	Confidence Interval
26.33	27.65		1.32	1.67
26.33		23.22	3.11*	1.67
	27.65	23.22	4.43*	1.67

**Significant at .05 level*

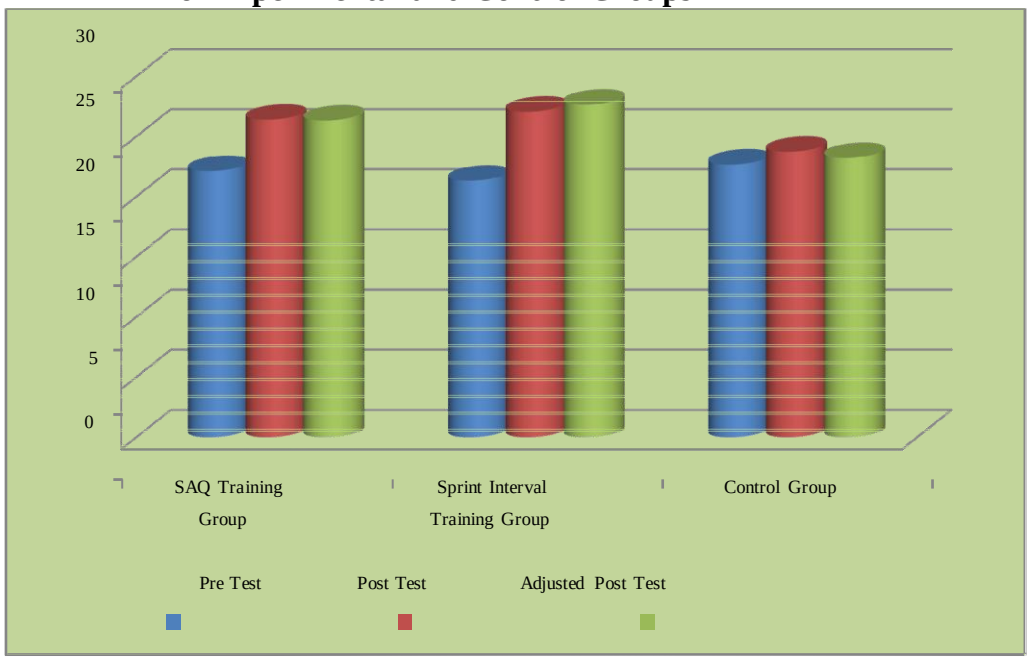
From table-II the Scheffe's post hoc analysis proved that significant mean differences exist between SAQ training and control groups, sprint interval training and control groups on basketball throw for accuracy. Since, the mean differences 3.11 and 4.43 are higher than the confident interval value of 1.67 at 0.05 level of significance. However, no significant difference exist between SAQ training and sprint interval training groups since, the mean difference 1.32 is lesser than the confident interval value of 1.67 at 0.05 level of confidence.

Hence, it is concluded that due to the effect of SAQ training and sprint interval training the basketball throw for accuracy performance of the subjects is significantly improved. It is also concluded that no significant differences exist between SAQ training and sprint interval training groups in improving basketball throw for accuracy performance.

The pre, post and adjusted post test mean values of experimental and control

groups on throw for accuracy is graphically represented in figure-I.

Figure – I Diagram Showing the Mean Values on Basketball Throw for Accuracy of Experimental and Control Groups



DISCUSSION

Basketball is a game of skill. But it's also a game of athletic ability and movement. To be a good player, not only they have to know the game and have good basketball skills, but they also have to be extremely agile.

Improving ability to move quickly around the court and they will be a better player. The game is all about movement: whether it's driving by a player on offense, sliding to defend a dribbler, or going after a loose ball increasing quickness and agility gives an edge over the competition. Basketball is a game of movement. But it's also a game of stops-and-starts.

As an offensive player they sprint to the offensive end of the floor, hustle 10 or 12 feet across the court to set a screen, roll to the basket, make a quick move to get open to catch a pass, pass and screen away, cut to the basket for a potential offensive rebound. It's all about footwork, movement, mobility. Fast starting, stopping, dodging, darting and acceleration are the fundamental requirements to good basketball players.

Since basketball game often involves conditions bouts of play at a vigorous rate, a high level of anaerobic endurance and also good jumping ability is of great importance (Jenson, 1995). Basketball players move with great speed over a limited space. In this sport, players cover about 4500–5000 m during a 40-min game with a variety of multidirectional movements such as running, dribbling, and shuffling at variable velocities and jumping (Crisafulli et al., 2002).

Basketball, above all else, is a game about decision making, which implies that its players need to be able to apply their skills in the quickly changing and very variable environment that is the essence of the activity.SAQ training method conditioning involves prescription of progressive exercises to develop an athlete's ability to be more skilful at faster speeds and with greater precision (Pearson, 2000).

SAQ conditioning enables athletes to become better at reacting to stimuli, start more quickly and efficiently, move effectively in multiple directions, and change direction or stop quickly to make a play in a fast, smooth, efficient, and repeatable manner (Brown, Ferdgno & Santana, 2000; Pearson et al., 2002). Bloomfield et al.,'s (2007) viewpoint is that the SAQ regimen is an important training method for the improvement of speed and quickness. Similarly, Dawson et al.,

(1998) found significant improvement in speed and repeated sprinting performance among male subjects, after six weeks of short sprint training sessions. They also suggested that increases in the proportion of type-II muscle fibers are also possible with this type of training. In addition, Casey et al., (1996) reported that during sprints, type-II muscle fibers are recruited to a large extent to produce high power output as fast as possible.

To conclude, the SAQ and sprint interval training appears to be an effective way of improving quickness and acceleration along with skill performance in basketball players and would therefore be a good method for coaches to incorporate into their strength and conditioning programs.

CONCLUSION The result of the study reveals that due to the effect of SAQ training and sprint interval training the basketball throw for accuracy of the subjects was significantly improved. It was also concluded that sprint interval training is significantly better than SAQ training groups in improving basketball throw for accuracy of men basketball players.

The results of this study can be considered important in terms of competitive basketball performance. Without proper planning of the SAQ and sprint interval training, basketball players will most likely be confronted with decrease in game performance during in-season period.

For proper basketball conditioning, coaches could make training more specific in such a way that the transfer of training effects to game efficiency will be faster.

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