Comparative Effects of Super Circuit Training, SAQ Training, and Their Combination on Agility of Basketball Players

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Abstract

The purpose of the study was to find out the isolated and combined effect of super circuit training and SAQ training on agility among basketball players. To achieve the purpose of the present study, sixty basketball players from Chikkaballapura district, Bangalore, Karnataka. The subjects were divided into four equal groups of fifteen each. Pre test was conducted for all the subjects. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group I, Experimental Group II, Experimental Group III and Control Group in an equivalent manner. Experimental Group I was exposed to super circuit training, Experimental Group II was exposed to SAQ training, Experimental Group III was exposed to combined training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all the subjects were tested on agility. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses. The combined training group had shown better performance on agility among basketball players than the other groups.

Keywords: Super Circuit Training, SAQ Training, Basketball, Agility.

Introduction

In contemporary sports conditioning, increasing emphasis is placed on training methods that simultaneously develop multiple components of fitness. Athletes are required to demonstrate not only muscular strength and endurance but also speed, agility, and rapid neuromuscular responses. Consequently, integrated training approaches that combine resistance training with dynamic movement patterns have gained prominence in modern athletic preparation (Baechle & Earle, 2008). Super circuit training represents an advanced form of circuit training in which resistance exercises are interspersed with continuous or high-intensity movements, placing combined demands on both the muscular and cardiovascular systems. This method facilitates improvements in muscular strength while maintaining elevated heart rate levels, thereby enhancing cardiovascular efficiency and overall conditioning. Due to its time-efficient and adaptable structure, super circuit training has been widely applied across different sports and performance levels (Fleck & Kraemer, 2014). Speed, agility, and quickness (SAQ) training focuses on improving an athlete's ability to move rapidly, change direction efficiently, and respond quickly to sport-specific stimuli. SAQ training targets neuromuscular coordination, reaction time, and

movement control, all of which are essential for successful athletic performance. Research suggests that SAQ training enhances neural activation, motor learning, and multi-directional power, contributing significantly to improved sport performance (Bompa & Buzzichelli, 2019). The integration of super circuit training with SAQ training offers a comprehensive approach to athletic development by combining strength, cardiovascular fitness, and neuromuscular efficiency within a single training framework. Such combined training methods may be particularly effective in preparing athletes for the physical and cognitive demands of competitive sports. Therefore, the present article aims to examine the role of super circuit training and SAQ training in enhancing overall physical fitness and performance among athletes.

Methodology

The purpose of the study was to find out the isolated and combined effect of super circuit training and SAQ training on agility among basketball players. To achieve the purpose of the present study, sixty basketball players from Chikkaballapura district, Bangalore, Karnataka. The subjects were divided into four equal groups of fifteen each. Pre test was conducted for all the subjects. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group I, Experimental Group II, Experimental Group III and Control Group in an equivalent manner. Experimental Group I was exposed to super circuit training, Experimental Group II was exposed to SAQ training, Experimental Group III was exposed to combined training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all the subjects were tested on agility. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses.

Results

TABLE - I
COMPUTATION OF ANALYSIS OF COVARIANCE OF SUPER CIRCUIT TRAINING SAQ TRAINING COMBINED TRAINING AND CONTROL GROUPS ON AGILITY

	SCTG	SAQTG	COMTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	16.12	16.10	16.05	16.08	BG	0.03	3	0.01	1.05
					WG	0.68	56	0.01	
Post-Test Means	15.51	15.52	15.19	16.07	BG	6.02	3	2.00	215.82*
					WG	0.52	56	0.001	
Adjusted Post-	15.50	15.52	15.20	16.07	BG	5.91	3	1.97	239.13*

Test Means					WG	0.45	55	0.001	

BG- Between Group
* - Significant
WG- Within Group
(Table Value for 0.05 Level for df 3 & 56 = 2.76)
df- Degrees of Freedom
(Table Value for 0.05 Level for df 3 & 55 = 2.77)

An examination of table - I indicated that the pre test means of super circuit training, SAQ training, combined training and control groups were 16.12, 16.10, 16.05 and 16.08 respectively. The obtained F-ratio for the pre-test was 1.05 and the table F-ratio was 2.76. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 56. This established that there were no significant difference between the experimental and control groups indicating that the procedure of randomization of the groups was ideal while conveying the subjects to groups. The post-test means of the super circuit training, SAQ training, combined training and control groups were 15.51, 15.52, 15.19 and 16.07 respectively. The obtained F-ratio for the post-test was 215.82 and the table F-ratio was 2.76. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 56. This proved that the differences between the post test means of the subjects were significant. The adjusted post-test means of the super circuit training, SAQ training, combined training and control groups were 15.50, 15.52, 15.20 and 16.07 respectively. The obtained F-ratio for the adjusted post-test means was 239.13 and the table F-ratio was 2.77. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 55. This proved that there was a significant difference among the means due to the experimental trainings on agility.
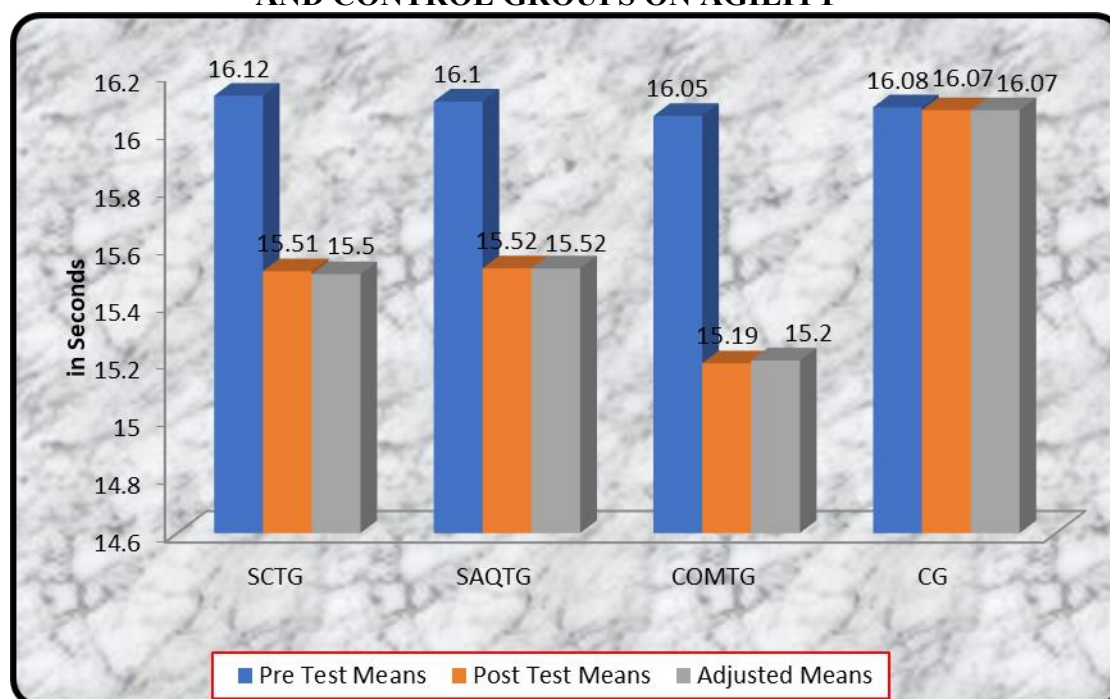
TABLE – II
THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST MEANS ON AGILITY

Adjusted Post-Test Means				Mean Difference	Confidence Interval
SCTG	SAQTG	COMTG	CG		
15.50	15.52	--	--	0.02	
15.50	--	15.20	--	0.30*	
15.50	--	--	16.07	0.57*	
--	15.52	15.20	--	0.32*	0.09
--	15.52	--	16.07	0.55*	
--	--	15.20	16.07	0.87*	

Significant at 0.05 level of confidence

The multiple comparisons showed in Table II proved that there existed significant differences between the adjusted means of super circuit training with combined group (0.30), SAQ training with combined group (0.57), super circuit training with control group (0.32), SAQ training with control group (0.55) and combined group with control group (0.87). There was no significant difference between super circuit training and SAQ training group (0.02) at 0.05 level of confidence with the confidence interval value of 0.09.

FIGURE - I
PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE, SUPER CIRCUIT TRAINING SAQ TRAINING COMBINED TRAINING AND CONTROL GROUPS ON AGILITY

Conclusion

The combined training group had shown better performance on agility among basketball players than the other groups.

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