



Effect of Speed Based Circuit Training and Cross Training on Corporeal Variables among Inter Collegiate Basketball Players

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ABSTRACT

Basketball is an athletic sport, that can be played both indoors and outdoors. Because of its continuous action and frequent scoring, basketball is one of the most popular spectator as well as participant sports in the world. Basketball, extremely popular around the world, is a court game played by two teams of five players each. The object is to put a ball through a basket, and thus score more points than the opposing team. Training programmed for improving physical fitness speed, agility and cardio respiratory endurance. The idea of the study was to find out the enhancing corporeal variables among inter collegiate basketball players through speed based circuit training and cross training. To achieve the purpose of the study, 60 inter collegiate basketball players would randomly selected from Coimbatore district and their age ranged between 18 and 25year. All corporeal variables were assessed by standard tests; speed(50m Dash), agility(4X10 shuttle run) and cardio respiratory endurance(Cooper 12min run and walk). Speed based circuit training and Cross training group (n = 60) would undergone for a period of 12 weeks. The results revealed that there was a significant difference found on the criterion variables. The difference was found by speed based circuit training and cross training given to the experimental group I, experimental group II and control group on speed, agility and cardio respiratory endurance of inter collegiate basketball players.

Keywords: Speed Based Circuit Training, Cross Training, Speed, Agility and Cardio Respiratory Endurance and Basketball Players.

INTRODUCTION

Basketball is one of the quickest games, and to perform each skill at the desired or necessary level, high level conditioning, coordination, and technical and tactical potential are vital. A programmed called particular circuit and cross training comprises performance training created expressly to improve athletic performance. Training programmed for improving as speed, power, endurance, flexibility, mobility, and agility. They may also target mental toughness, including goal-setting, sleep, and recovery regeneration techniques and strategies. A more specialized programmed might only include a few of these aspects, depending on the needs of the individual athlete (based on strengths, weaknesses, and imbalances), as well as the requirements of the sport they play (Katushabe, E. T., & Kramer, M. (2020)). A general programmed should include all of these elements. Sports performance training is physical activity designed specifically to increase overall efficiency as an athlete in the sport that choose. An individual could become more physically fit overall and make some progress as an athlete with specific training. In sports, team training refers to a series of physical activities designed to improve a player's physical or motor skills. The training programmed should be particularly created based on the components that are needed for the talent or technique in sport when it comes to players who are at a higher level or above the basic level (Ashish Phulkar 2011). Consequently, a player needs this kind of particular speed based circuit training and cross training for success in sports. Thus, the present study has been carries out to study the Effect of speed based circuit training and cross training on corporeal variables among inter collegiate basketball players. Both speed-based circuit training and cross training can be effective components of a well-rounded fitness program. However, it's important to tailor your training approach to your specific fitness goals and individual preferences. Always consult with a fitness professional or trainer to ensure that your workouts are safe and effective.

METHODOLOGY

The idea of the study was to find out the speed based circuit training and cross training on corporeal variables among inter collegiate basketball players. To achieve the purpose of the study, twenty inter collegiate basketball players would randomly selected from affiliated collegiate from Bharathiar University, Coimbatore district and their age ranged between 18 and 25year. All skill performance variables were assessed by standard tests; Speed by 50m dash, Agility by Shuttle run 4x10mts, Cardiovascular endurance by Cooper 12min run and walk,. Total number of subject 60 divided into three equal group Speed based circuit training group, cross training group and control group (n = 20) would undergone for a period of twelve weeks.

CRITERION MEASURES

The subjects of Speed based circuit training group, cross training group and control group would assessed on the selected variables by the standardized test items before and after the training period of twelve weeks.

Table –I

S.NO.	VARIABLES	TESTS	UNIT OF MEASUREMENT
CORPOREAL VARIABLES			
1.	Speed	50m dash	Seconds
2.	Agility	Shuttle run 4x10mts	Seconds
3.	Cardiovascular endurance	Cooper 12min run and walk	Meters

TRAINING PROGRAMME

The total duration of speed based circuit training and cross training for three alternative days. During the training period 90 min the subject were treated with speed based circuit training group(Monday, Wednesday, Friday) and cross training group (Tuesday, Thursday, Saturday) for three alternative days per week.

Experimental Group I Speed Based Circuit Training Group (SBCT), Experimental Group II Cross Training Group (CT), Control Group III Not engaged in any specific training program .Training Duration One and Half Hours (90 minutes), Preparation / warm-up -10 minutes, Training for specific components -30 minutes, Distributed rests -10 minutes, Relaxation / Cool-down -10 minutes .Training session Per week three alternative days a week only in the morning total length of training twelve weeks training load progression every four weeks.

STATISTICAL TECHNIQUES

The present study were mainly on testing the significant of mean differences among the groups and secondarily with the increase of means in each group from baseline to post test for various measures. The statistical tool used for the criterion measures were tested for significance by applying paired 't' test. All of the statistical analysis tests were computed at 0.05 level of significance (P<0.05).

RESULTS

Table-II

SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF SBCTG, CTG , CG OF INTER COLLEGIATE BASKETBALL PLAYERS ON SPEED

Variables	GROUP	Pre test Mean and SD	Post test Mean and SD	Mean Diff.	SE	't'- ratio
SPEED	SBCTG	7.29±.41	6.98±.34	0.31	0.04	6.40*
	CTG	7.41±.433	7.27±.424	0.14	0.04	2.85*
	CG	7.26±.380	7.33±.274	0.07	0.07	0.97*

*Significant at 0.05 level of confidence

Table-II reveals that the obtained mean values of pre test and post test scores of speed on Speed Based Circuit Training Group were 7.20 and 6.98, Cross Training Group 7.41 and 7.27, Control Group 7.26 and 7.33 respectively; the obtained t ratio was Speed Based Circuit Training Group 6.40, Cross Training Group 2.85 and Control Group 0.97. The required table value is 2.09 at 0.05 level of confidence for the degree of freedom 1 and 19. The obtained t ratio was greater than the table value. It is found to be significant changes in Speed of the basketball players. The mean values on Speed Based Circuit Training Group, Cross Training Group and control group are graphically represented in figure-1

Figure-1

FIGURE-1: BAR DIAGRAM SHOWING THE PRE-TEST& POST-TEST SBCTG, CTG , CG OF INTER COLLEGIATE BASKETBALL PLAYERS ON SPEED

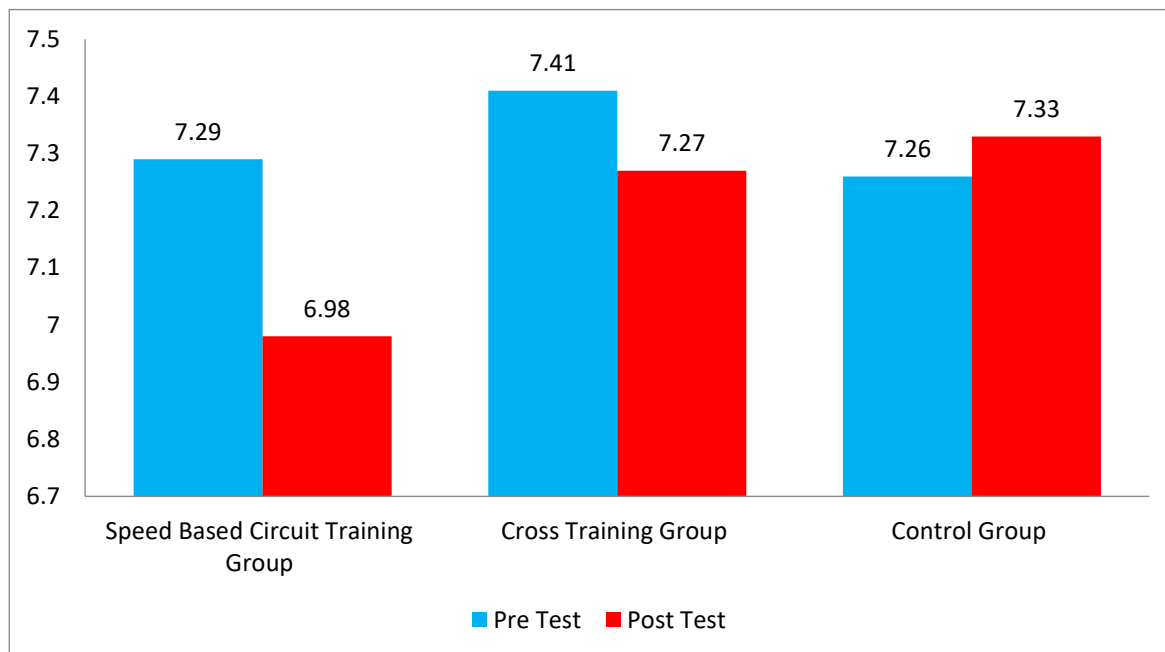


Table-III

SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF SBCTG, CTG , CG OF INTER COLLEGIATE BASKETBALL PLAYERS ON AGILITY

Variables	GROUP	Pre test Mean and SD	Post test Mean and SD	Mean Diff.	SE	't'- ratio
AGILITY	SBCTG	10.49±.425	10.10±.352	0.38	0.04	9.27*
	CTG	10.56±.419	10.39±.398	0.16	0.02	5.87*
	CG	10.40±.355	10.42±.383	0.02	0.04	0.45*

*Significant at 0.05 level of confidence

Table-III reveals that the obtained mean values of pre test and post test scores of Agility on Speed Based Circuit Training Group were 10.49 and 10.10, Cross Training Group 10.56 and 10.39, Control Group 10.40 and 10.42 respectively; the obtained t ratio was Speed Based Circuit Training Group 9.27, Cross Training Group 5.87 and Control Group 0.45. The required table value is 2.09 at 0.05 level of confidence for the degree of freedom 1 and 19. The obtained t ratio was greater than the table value. It is found to be significant changes in Speed of the basketball players. The mean values on Agility Based Circuit Training Group, Cross Training Group and control group are graphically represented in figure-2

Figure-2

FIGURE-2: BAR DIAGRAM SHOWING THE PRE-TEST& POST-TEST SBCTG, CTG , CG OF INTER COLLEGIATE BASKETBALL PLAYERS ON AGILITY

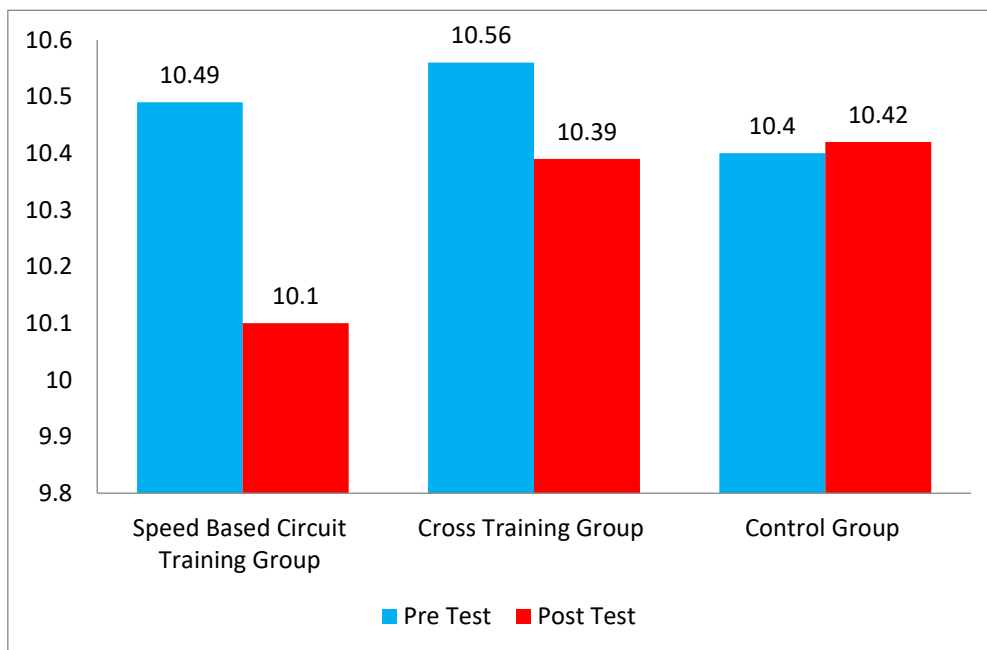


Table-IV

SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF SBCTG, CTG , CG OF INTER COLLEGIATE BASKETBALL PLAYERS ON CARDIO VASCULAR ENDURANCE

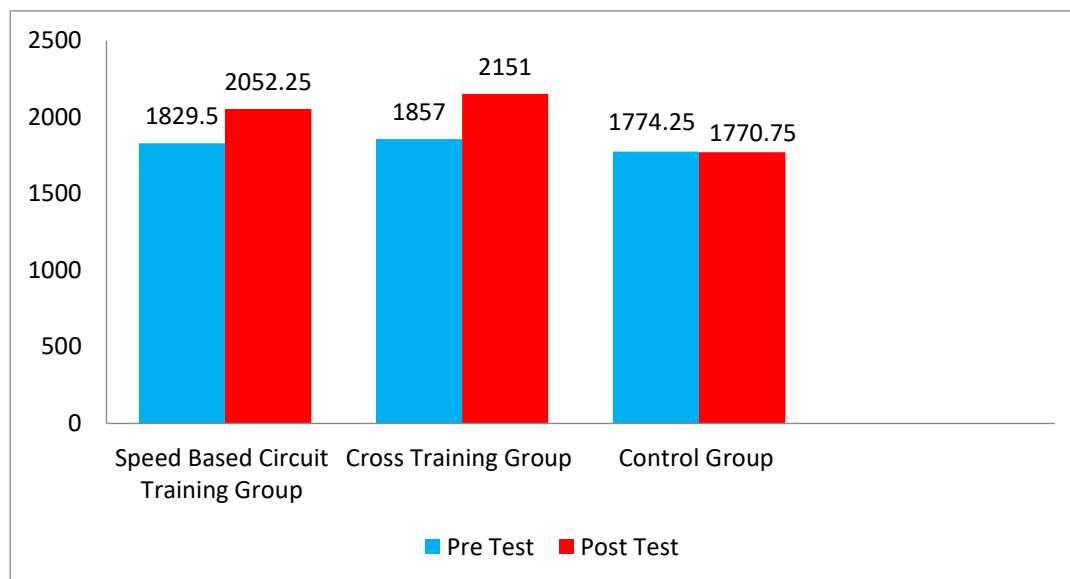
Variables	GROUP	Pre test Mean and SD	Post test Mean and SD	Mean Diff.	SE	't'- ratio
CARDIO VASCULAR ENDURANCE	SBCTG	1829.50±186.62	2052.25±195.13	222.75	43.65	5.10*
	CTG	1857.00±113.14	2151.00±53.99	294.00	28.34	10.37*
	CG	1774.25±210.13	1770.75±214.00	3.50	41.74	0.08*

*Significant at 0.05 level of confidence

Table-IV reveals that the obtained mean values of pre test and post test scores of Cardio Vascular Endurance on Speed Based Circuit Training Group were 1829.50 and 2052.25, Cross Training Group 1857.00 and 2151.00, Control Group 1774.25 and 1770.75 respectively; the obtained t ratio was Speed Based Circuit Training Group 5.10, Cross Training Group 10.37 and Control Group 0.08. The required table value is 2.09 at 0.05 level of confidence for the degree of freedom 1 and 19. The obtained t ratio was greater than the table value. It is found to be significant changes in Cardio Vascular Endurance of the intercollegiate basketball players. The mean values on Speed Based Circuit Training Group, Cross Training Group and control group are graphically represented in figure-3

Figure-3

FIGURE-3: BAR DIAGRAM SHOWING THE PRE-TEST& POST-TEST SBCTG, CTG , CG OF INTER COLLEGIATE BASKETBALL PLAYERS ON CARDIO VASCULAR ENDURANCE



DISCUSSION ON FINDINGS

The data analysis shows that a twelve-weeks speed-based circuit training program combined with cross training significantly improved corporeal variables for speed, agility and cardio respiratory endurance. This could be explained by the development of Speed and Agility during speed-based circuit training. Cross training increases cardio respiratory endurance. Regular participation in the speed-based circuit may have improved one's speed and agility because the majority of the stations in the circuit focused on strengthening the muscles in the legs, arms, and trunk. Cross training involved engaging in multiple forms of exercise on a regular basis, such as swimming, cycling, and yoga. The findings of the present study are in consonance with the results arrived at by **Mohammad Chotemiya et.al., (2021), Kariyawasam A (2019) Revanna C et.al.,(2018)**.

CONCLUSIONS

Based on the findings and within the limitation of the study it is noticed that practice of speed-based circuit training helped to improve speed, and agility cross training helped to improve cardio respiratory endurance of intercollegiate basketball players. It was also seen that there is progressive enhancement in the selected criterion variables of speed based circuit training and cross training after twelve weeks of training programmed. Further, it also helps to improve speed, agility, and cardio respiratory endurance.

It was concluded that individualized effects of Speed Based Circuit Training Group showed a statistically significant positive sign over the course of the treatment period on speed and agility of intercollegiate basketball players.

It was concluded that individualized effects of Cross Training Group showed a statistically significant positive sign over the course of the treatment period on cardio respiratory endurance of intercollegiate basketball players.

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