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EFFECT OF SPORT SPECIFIC CIRCUIT TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES OF INTERCOLLEGIATE MALE FOOTBALL PLAYERS

Sri. C . Edwin Marshal[1], [2]Dr .V. Balamurugan[2]

[1]Research Scholar, Master of Physical Education (M.P.Ed),Sri Ramakrishna Mission Vidyalaya, Maruthi College of Physical Education, Coimbatore, Tamil Nadu, India.

[2]Research Supervisor & Assistant Professor, Sri Ramakrishna Mission Vidyalaya, Maruthi College of Physical Education, Coimbatore, Tamil Nadu, India.

ABSTRACT

Sport-specific training in its current concept is a means of simulating a movement or exercise in the weight room with the intention of it transferring to the playing field, regardless of what that field is. Circuit training is also a convenient way to exercise. It maximizes the total exercise volume (number of sets, repetitions, and amount of weight) completed in a period of time. Exercises are completed in a row, and therefore, the time spent exercising is condensed. Separate cardiovascular training is not necessary. All body parts are trained in one session, and therefore, exercisers do not need to work out every day.The purpose of the study was to find out the effect of sport specific circuit training on selected physical fitness variables of intercollegiate male Football players. To achieve the purpose of the study, thirty male Football players were randomly selected from Bharathiar University department, Coimbatore. Their age ranged between 18and24 years. They were divided into two equal groups consist of 15 each. The group 1 (n=15) was considered as control group. The group II (n=15) was considered as experimental group. The investigator did not make any attempt to equate the groups. The control group was not given any treatment and the experimental group was given specific circuit training for three days per week for aperiod of eight weeks. The data were studied using the paired sample "t' test, with the level of significance set at 0.05. SSCT training showed a positive impact on agility and balance planes of male Football players. The findings of the study further indicated significant improvement in agility and balance, which can be attributed to the effects of SSCT training of school level male Football players

KEYWORD: *Specific Circuit Training, Physical Fitness, Football Players*

INTRODUCTION

Football is a physically demanding sport that requires a unique combination of speed, agility, strength, endurance, coordination, and tactical awareness. The modern game has evolved into a high-intensity, fast-paced contest where players are expected to perform repeated sprints, rapid changes of direction, and sustained efforts throughout 90 minutes. Consequently, the physical fitness of intercollegiate male Football players plays a decisive role in determining individual and team performance.To meet these demands, training methods must go beyond general conditioning. Sports specific circuit training has emerged as an effective approach that integrates sport-related movements with the principles of circuit training. Unlike traditional circuit training, which focuses on general fitness, sports specific circuit training mimics the motor patterns, energy systems, and skill requirements of Football. It combines stations of drills such as short sprints, agility ladders, ball dribbling, plyometric jumps, and core stability exercises, arranged to develop multiple fitness components simultaneously while maintaining game relevance.Physical fitness variables such as speed, agility, muscular strength, muscular endurance, flexibility, and cardiorespiratory endurance are critical for Football players at the intercollegiate level. These variables directly influence a player's ability to accelerate, decelerate, tackle, shoot, and sustain performance under fatigue. Enhancing these variables through targeted training can lead to improved match performance and reduced injury risk.Despite the popularity of Football at the intercollegiate level, many training programs still rely on conventional methods that may not fully address the specific physiological and technical demands of the sport. There is a need to evaluate training interventions that are both time-efficient and sport-specific. Therefore, the present study is designed to investigate the effect of sports specific circuit training on selected physical fitness variables of intercollegiate male Football players. The findings may provide coaches, trainers, and physical education professionals with evidence-based strategies to optimize training and enhance on-field performance.

TRAINING PROGRAMME

The training program was lasted for 45 minutes per session in a day, 3 days in a week for a period of eight weeks duration. These 45 minutes included 5 minutes warm up and 5 minutes warm down remaining 35 minutes allotted for seven station circuit training

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programme. Every two weeks of training 5% of intensity was increased from 65% to 75% of work load. The training load was increased from the maximum working capacity of the subjects during the pilot study.

TABLE I
SPORT SPECIFIC CIRCUIT TRAINING SCHEDULE FOR FOOTBALL PLAYERS

Weeks	Specific Circuit Training	Set X Repetitions	Rest and Recovery
1-2 Weeks	Pull-ups Medicine ball throw Burpee Speed Squats Skipping Depth jump Abdominal Crunch	3 X 8	1 minute rest between exercise and 2 minutes rest between sets
3-4 Weeks	Skipping Speed Squats Pushup Depth jump Abdominal Crunch Medicine ball throw Burpee	3 X 10	1 minute rest between exercise and 2 minutes rest between sets
5-6 Weeks	Speed Squats Abdominal Crunch Zig – zag running Skipping Pushup Shuttle run Depth jump	3 X 12	1 minute rest between exercise and 2 minutes rest between sets
7-8 Weeks	Split-jump Plank twist abdominal Zig – zag running Speed Squats Shuttle run Abdominal Crunch Burpee	3 X 15	1 minute rest between exercise and 2 minutes rest between sets

STATISTICAL ANALYSIS

The collected data on selected physical fitness variables due to effect of circuit training was analyzed by using means and standard deviation. In order to find out the significant improvements if any't' test was applied, 0.05 level of confidence was fixed to level of significant.

TABLE-V
4.7 COMPUTATION OF 't' RATIO BETWEEN PRE AND POST TEST MEANS OF CONTROL GROUP ON AGILITY
(Scores in seconds)

Group	Mean	Standard deviation	Mean	Standard error	t-ratio
Pre test	9.8520	0.66654	0.0887	0.04346	2.040
Post test	9.9407	0.64012			

*Significant at 0.05 level of confidence (2.145), 1, 14

Table V reveals that the computation of 't' ratio between mean of pre and post test on agility of intercollegiate male Football players .The mean values of pre and post test of control group were 9.85seconds and 9.94 seconds respectively. Since, the obtained 't' ratio 2.04 was less than the required table value 2.145, it was found to be statistically not significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the agility of the control group had not been improved.

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TABLE-VI
4.8 COMPUTATION OF 't' RATIO BETWEEN PRE AND POST TEST MEANS OF EXPERIMENTAL GROUP ON AGILITY
(Scores in seconds)

Group	Mean	Standard deviation	Mean Difference	Standard error mean	t-ratio
Pre Test	10.2123	0.79616	0.0813	0.00477	16.635*
Post Test	10.1330	0.79645			

*significant at 0.05 level of confidence (2.145), 1, 14

Table VI reveals that the computation of 't' ratio between mean of pre and post test on agility of intercollegiate male Football players of experimental group. The mean values of pre and post test of experimental group were 10.21seconds and 10.13seconds respectively. Since, the obtained 't' ratio 16.63 was higher than the required table value 2.145, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the agility of the experimental group improved due to the influence of sport specific circuit training.

The bar diagram shows the mean values of pre test and post test on agility of control group and experimental group.

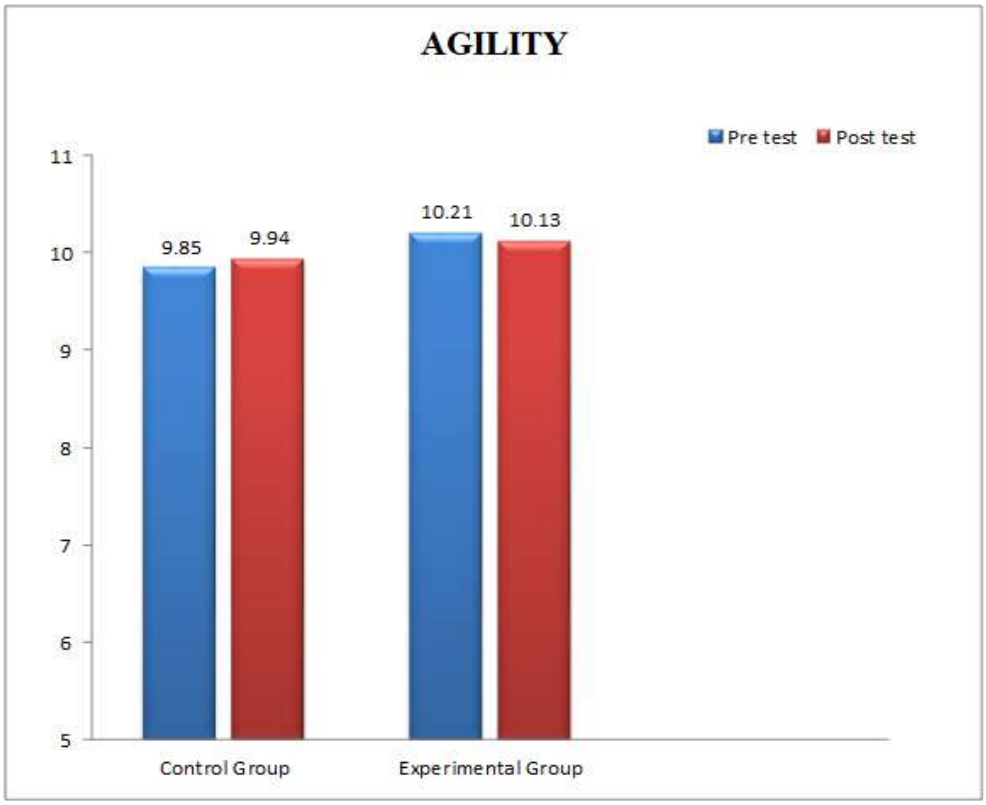


FIGURE-II
4.9 BAR DIAGRAM SHOWS THE MEAN VALUES OF PRE AND POST TEST ON AGILITY OF CONTROL AND EXPERIMENTAL GROUPS
(Scores in seconds)

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TABLE-IX

4.13 COMPUTATION OF 't' RATIO BETWEEN PRE AND POST TEST MEANS OF CONTROL GROUP ON

(Scores in centimeters)

Group	Mean	Standard deviation	Mean Difference	Standard error mean	t-ratio
Pre test	0.4800	0.04706	0.0047	0.00256	1.825
Post test	0.4847	0.04673			

*Significant at 0.05 level of confidence (2.145), 1, 14

Table IX reveals that the computation of 't' ratio between mean of pre and post test on of intercollegiate male Football players .The mean values of pre and post test of control group were 0.48 centimeters and 0.48 centimeters respectively. Since, the obtained't' ratio1.82 was less than the required table value 2.145, it was found to be statistically not significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the of the control group had not been improved.

TABLE-X

4.14 COMPUTATION OF 't' RATIO BETWEEN PRE AND POST TEST MEANS OF EXPERIMENTAL GROUP ON

(Scores in centimeters)

Group	Mean	Standard deviation	Mean Difference	Standard error mean	t-ratio
Pre test	0.4640	0.06334	0.066	0.00466	14.164*
Post test	0.5300	0.06601			

*Significant at 0.05 level of confidence (2.145), 1, 14

Table X reveals that the computation of 't' ratio between mean of pre and post test on of intercollegiate male Football players .The mean values of pre and post test of experimental group were 0.46 centimeters and 0.53 centimeters respectively. Since, the obtained 't' ratio 14.16 was higher than the required table value 2.145, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the of the experimental group improved due to the influence of sport specific circuit training.

The bar diagram shows the mean values of pre test and post test on of control group and experimental group.

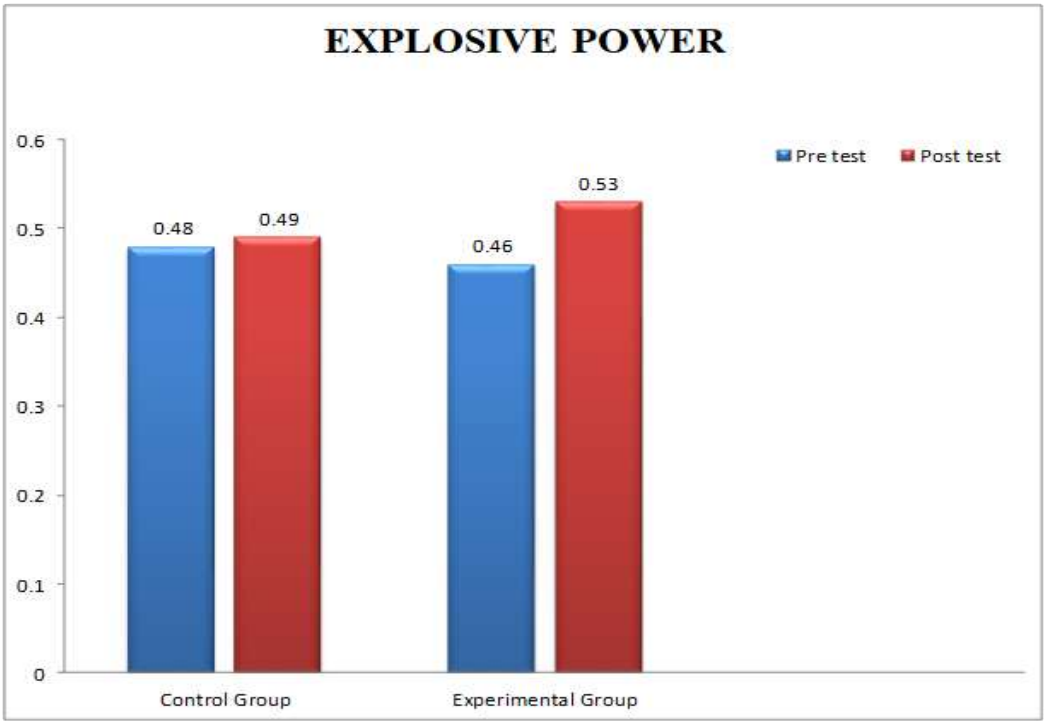


FIGURE-IV

4.15 BAR DIAGRAM SHOWS THE MEAN VALUES OF PRE AND POST TEST ON OF CONTROL AND EXPERIMENTAL GROUP

(Scores in centimeters)

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DISCUSSIONS ON FINDINGS

The results of the study indicated that the selected physical fitness variables, agility, muscular strength and were improved significantly after undergoing sport specific circuit training. The changes in the selected parameters were attributed the proper planning, preparation and execution of the training package given to the players.

The findings of the present study had similarity with the findings of the investigations referred in this study.
However the subjects participated in the control group did not improve their speed, agility, muscular strength and .
Meethal *et al.*, (2013) circuit training program was effective to increase speed and agility among school boys.
Kodgire (2014) circuit training progamme was significantly improvement on muscular strength
Vinayagamoorthi *et al.*, (2014) assessed the effect of Cardiac circuit training, which is designed to be performed six weeks of training, improves speed, agility and muscular strength.
Deeva *et al.*, (2013) circuit training benefit improved the performance of jumping ability.
Nagamani *et al.*, (2013) evaluated the effect of specific circuit training on the selected physical fitness variables of speed, agility and muscular endurance are significantly improving of collegiate women athletes.
Yadav *et al.*, (2011) investigated the effects of circuit training for the development of power ability and agility in Football players.
Gopal *et al.*, (2014) analyzed the influence of circuit training is improving speed and agility in high school Football players.
The results of the present study indicates that the sport specific circuit training methods is appropriate protocol to improve speed, agility, muscular strength and of college level male FOOTBALL players.

The discrepancy between the result and the result of previous studies might be attributed to several reasons, such as the training experience level of the subjects, the training programme, in intensity used and the duration of the training programme.

CONCLUSIONS

1. Eight weeks of sport specific circuit training improved the agility of intercollegiate male football players.
2. Eight weeks of sport specific circuit training significantly improved the Explosive power of intercollegiate male football players

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