



Impact of skill-based circuit training on physical fitness and skill performance parameters of women footballers

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Abstract

This study was designed to find out the impact of skill-based circuit training on physical fitness and skill performance parameters of women footballers. To achieve the purpose of the study 30 women footballers were selected from Bharathiar University department and Nirmala college for women, Coimbatore. Their age ranged from 18 to 25 years and they were divided into two equal groups consists of 15 each. Group- I underwent skill based circuit training and Group - II acted as control group (CG). The training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work. The data collected from the subjects was statistically analyzed with 't' ratio to find out significant improvement if any at 0.05 level of confidence. The result speculated that the agility and dribbling of the women footballers improved significantly due to influence of skill-based circuit training with the limitations of (diet, climate, life style) status and previous training. The result of the present study coincides findings of the investigation done by different experts in the field of sports sciences. Skill based circuit training significantly improved agility and dribbling skill of women footballers.

Keywords: skill-based circuit training, agility and dribbling

Introduction

Circuit training is an efficient and challenging form of conditioning. It works well for developing strength, endurance (both aerobic and anaerobic), flexibility and coordination. Its versatility has made it popular with the general Public right through to elite athletes. For sports men and women, it can be used during the closed season and early pre-season to help develop a solid base of fitness and prepare the body for more stressful subsequent training. Circuit training is an effective organizational form of doing physical exercises for improving all physical fitness components. Before and after training, the initial and final tests were conducted for the variables such as speed, agility, power, co-ordination, static balance and dynamic balance for the experimental and control groups. Circuit training is an exercise program that develops overall fitness. Performed regularly, circuit training will simultaneously improve muscular strength, endurance, cardiovascular fitness, and flexibility. Circuit training was invented in 1953 as an efficient way for coaches to train many athletes in a limited amount of time with limited equipment. The exerciser moved through a series of weight training or calisthenics arranged consecutively. It was a fast-paced workout of 15 to 45 seconds per station with little (15 to 30 seconds) or no rest between stations. Today, this is known as "circuit weight training". Research has shown that it can increase muscular strength and endurance. There is a mild improvement in aerobic stamina but only if the rest periods are kept very short (Antonio *et al.* 2013).

Methodology

To achieve the purpose of the study 30 women footballers were selected from Bharathiar University Department and Nirmala college for women, Coimbatore. Their age ranged from 18 to 25 years and they were divided into two equal groups consists of 15 each. Group- I underwent skill-based circuit training and Group - II acted as control group (CG). The training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work

Table 1

S. No	Variable	Test item	Unit of measures
1	Agility	4x10 mts shuttle run	In sec
2	Dribbling	Warner soccer test	In sec

Training programme

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 12 weeks. These 45 minutes included 10 minutes warm up, 25 minutes skill-based circuit training and 10 minutes warm down. Every two weeks of training 5% of intensity of load was increased from 55% to 80% of work load. The volume of skill-based circuit training is prescribed based on the number of sets and repetitions. The skill-based circuit training is the length of the time each action is held for and the number action in total 3 day per weeks (Monday, Wednesday and Friday). The selected subjects underwent regular

physical exercise on other 3 days (Tuesday, Thursday, and Saturday). The collected data on above said variables due to the impact of skill based circuit training was statistically analyzed with 't' test to find out the significant Improvement between pre and posttest. In all cases the criterion for statistical significance was set at 0.05 level of confidence.

Table 2: Computation of 't'-ratio between pre and post-test means of agility and dribbling of women footballers on Experimental group

Variables	Group	Mean	Standard deviation	Mean difference	Standard error mean	t-ratio
Agility	Pre test	11.22	1.53	1.01	0.28	3.56*
	Post test	10.20	0.69			
Dribbling	Pre test	12.81	0.76	0.52	0.71	7.42*
	Post test	12.29	0.78			

*Significant at 0.05 level of confidence (2.145)

Table I reveals the computation of 't' ratio between pre-test and post-test on agility and dribbling of women footballers. The mean values for pre and post-test of experimental group were 11.22, 10.20, 12.81 and 12.29 respectively. Since the obtained 't' ratio 3.56 and 7.42 was greater than the required table value 2.145, it was found to be significant for the degrees of freedom 1 and 14 at 0.05 level of confidence. The result clearly indicated the agility and dribbling of experimental group had been improved due to the influence of skill-based circuit training.

Table 3: Computation of 'T'-Ratio Between Pre and Post Test Means of Kicking Ability and Dribbling of Women Footballers on Control Group

Variables	Group	Mean	Standard deviation	Mean difference	Standard error mean	t-ratio
Agility	Pre test	10.31	0.74	0.01	0.23	0.05
	Post test	10.30	0.59			
Dribbling	Pre test	13.18	0.60	0.06	0.06	0.93
	Post test	13.24	0.57			

Insignificant at 0.05 level of confidence (2.145)

Table II reveals the computation of 't' ratio between pre-test and post-test on agility and dribbling of women footballers. The mean values for pre and post-test of control group were 10.31, 10.30, 13.18 and 13.24 respectively. Since the obtained 't' ratio 0.05 and 0.93 was lesser than the required table value 2.145, it was found to be insignificant for the degrees of freedom 1 and 14 at 0.05 level of confidence.

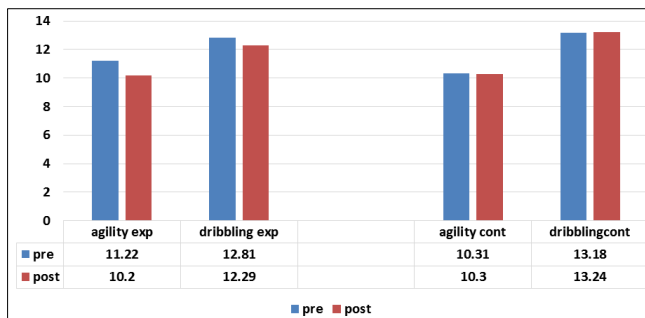


Fig 2: Bar Diagram Shows the Mean Values of Pre-Test and Post-Test on Agility and Dribbling of Experimental and Control Group

Discussion and Findings

The present study experimented the impact of 12 weeks skill-based circuit training significantly improved agility and dribbling of women footballers. The results of this study indicated that skill-based circuit training is more efficient to bring out desirable changes over agility and dribbling of women footballers. The finding of the present study had similarity with the findings of the investigators referred in this study. Suresh Kumar Influence of Circuit Training on Selected Physical Fitness Variables among Men Hockey Players. Saugata determined the effect of Circuit Training Program on Explosive Strength and Strength Endurance of School Going Students Aleksandra *et al.*, (2008) plyometric training for power parameters have typically explored the impact of complex and plyometric method of training on maximal vertical jump height. Avery (2007) evaluated and compared the effects of a six-week training period of combined plyometric and resistance training was tested on the vertical jump, long jump. Rajamohan *et al.*, (2010) evaluated the effects of a complex training program, a combined practice of weight training and plyometric, and contrast resistance and plyometric training on selected strength and power parameters in young healthy athletes. Sedano *et al.*, (2011) determined the effects of a 10-week plyometric training program on explosive strength, acceleration capacity and kicking speed in young elite soccer players.

Conclusions

Based on the result of the study it was concluded that the 12 weeks of skill-based circuit training have been significantly improved agility and dribbling among women footballers. From the findings it is postulated that skill-based circuit training is suitable mode to bring out desirable changes over agility and dribbling among women footballers.

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