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R Sridhar
Guest Lecturer, Department of
Physical Education, Bharathiar
University, Coimbatore, India

RG Giridharaprasath
Ph.D Research Scholar
Department of Physical
Education, Bharathiar
University, Coimbatore, India

Impact of aerobic dance training on motor fitness parameters and dribbling ability of football players

R Sridhar and RG Giridharaprasath

Abstract

This study was designed to investigate the impact of aerobic dance training on motor fitness parameters and dribbling ability of football players. To achieve the purpose of the study 30 inter-collegiate male football players were selected from affiliated colleges of Bharathiar University, Coimbatore. The subjects was randomly assigned to two equal groups (n=15). Group- I underwent aerobic dance training (ADTG) and group - II was acted as control group (CG). The aerobic dance 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. A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. The motor fitness parameters of flexibility (sit and reach test) and the agility (4X10 shuttle run test) were measured and dribbling ability (Warner's soccer test) before and after training period. The data collected from the subjects was statistically analyzed with 't' test to find out significant improvement if any at 0.05 level of confidence. The result of the agility and flexibility, speculated significant improvement due to influence of aerobic dance training with the limitations of (diet, climate, life style) status and previous training. The result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. Aerobic dance training significantly improved agility, flexibility and dribbling ability of inter-collegiate male football players.

Keywords: Aerobic dance training, agility, flexibility, dribbling ability

1. Introduction

1.1 Football

The game of football is both an art and science. Football involves techniques of running, passing, kicking, tackling, blocking, heading, juggling and dribbling. Often all these activities have to be performed at great speed. Though these individual skills are very important but it should not be forgotten that it is a team game and the players have to work together in offence or defence. Therefore a player must develop his skills and understanding for his contribution as per the demands of the game. The game of football contains physical challenges. Though two players may be equal in their skills but because of different physical and mental response, there can be much difference in their performance. A player must be quick in assessing a situation and in his response. A forward has to decide between pass and shot, defender between marking and covering and a goalkeeper whether to defend, keep standing at the goal or to run forward or sideways. A player may specialize to play in a particular position. It is better if he develops skills necessary for other positions. All players should be aware of both the attacking and defensive principles of game and a player must learn from his own observations and mistakes. Football is a game of constant action and requires continuous adaptation to the changing situations, by the team as a whole as well as by each individual player. Though it is a team game, but there is still ample room for players to display their brilliance through individual skills during the game. At international level football matches tend to attract millions of people to watch them.

1.2 Aerobic Dance

Aerobics, meaning "with oxygen," refers to physical exercise to improve cardio respiratory endurance. Aerobic movement is rhythmic and repetitive, engaging the large muscle groups in the arms and legs for at least twenty minutes at each session.

Correspondence

R Sridhar
Guest Lecturer, Department of
Physical Education, Bharathiar
University, Coimbatore, India

The ensuing demand for a continuous supply of oxygen creates the aerobic training effect, physiological changes that enhance the ability of the lungs, heart, and blood vessels to transport oxygen throughout the body. The most beneficial aerobic exercises include cross-country, swimming, running, cycling, walking, and aerobic dance. Activities that rely on brief or discontinuous bursts of energy, such as weight lifting, are anaerobic "without oxygen" (Timothy, 1993)

Aerobic dance is the fitness sport that combines the health and figure benefits of jogging with the fun of dancing. Aerobic dancing is a fun way to get fit. It combines fat burning aerobic movements, muscle building exercises and stretching into routines that are performed according to music. Aerobic dancing is challenging for college level boys. They fell as though they were performing, while firming up their body and strengthening their cardiovascular system. Aerobic dancing is a series of callisthenic exercise movements, accompanied by music, the use of music is a technique of motivation that has been increased in recent years. Aerobic dance is essential to a healthy cardiovascular system. Briefly, aerobic dance is an activity that can be sustained for an extended period of time without building and oxygen debt in the muscles. It is a type of dance that overloads the heart and lungs and causes them to work harder than they do when a person is at rest. Aerobic literally means "with air". Aerobic dance is the type of activity in which the amount of oxygen taken in equal to the amount of oxygen required. (Sorensen and Jackie, 1972)

1.3 Reason for the Study

Football is not a one dimensional game. In football, an agile player can respond quicker to opposite player. A football player must be able to dribble past an opponent using both feet and tricks. This requires the development of speed, flexibility and agility. Attackers need use agility to lose defenders and create space, leading to better scoring opportunities. The AJSM study suggests that the most common football injury linked to poor flexibility is a groin strain. A football player must have a overall flexibility, because the less flexibility the muscle the more easily it can be injured. Therefore, we selected the variables such as flexibility, agility and dribbling ability.

2. Methods

2.1 Experimental Approach to the Problem

In order to address the hypothesis presented herein, we selected 30 inter-collegiate male football players from affiliated colleges of Bharathiar University, Coimbatore. The subjects were randomly assigned in to two equal groups namely, aerobic dance training group (ADTG) (n=15) and Control group (CG) (n=15). A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of twelve weeks. The control group was not given any sort of training except their routine.

2.2 Design

The evaluated motor fitness parameters were flexibility was assessed by sit and reach test and the unit of measurement was in cm, agility was assessed by 4X10 shuttle run test the unit of measurement was in minutes and dribbling ability was

assessed by Warner's soccer test and the unit of measurement was in seconds. The parameters were measured at baseline and after 12 weeks of aerobic dance were examined.

2.3 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 duration. These 45 minutes included 10 minutes warm up, aerobic dance training for 25 minutes and 10 minutes warm down. Every three weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of aerobic dance training is prescribed based on the number of sets and repetitions. The equivalent in aerobic dance training is the length of the time each action in total 3 day per weeks (Monday, Wednesday and Friday). The intensity of exercise for 10 weeks before tapering off during 11th and 12th weeks as removal by Piper and Erdman (1998). The intensity of training was tapered, so that fatigue would not be a factor during post testing.

2.4 Aerobic dance training schedule for impact per session

Training week	Name of the aerobic dance exercises	Sets & Repetition	Intensity
I & II	On spot marching Step touch Power walk V step Walk and kick	2x5 2X5 2x5 2x5 2x5	55%
III & IV	On spot marching Step touch Power walk V step Walk and kick	3x7 3x7 3x7 3x7 3x7	60 %
V & VI	Grapevine T step Diamond A step Knee up	2x7 2x7 2x7 2x7 2x7	65%
VII & VIII	Grapevine T step Diamond A step Knee up	3x8 3X8 3x8 3x8 3x8	70 %
IX & X	Step touch V step Grapevine T step Hamstring curl	4x7 4X7 4x7 4x7 4x7	75 %
XI & XII	Step touch V step Grapevine T step Hamstring curl	3x8 3X8 3x8 3x8 3x8	70 %

2.5 Statistical Analysis

The collected data before and after training period of 12 weeks on the above said variables due to the effect of aerobic dance was statistically analyzed with 't' test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$)

Table I: Computation of ‘T’ Ratio on Selected Motor Fitness Parameters and Dribbling Ability Of Inter Collegiate Male Football Players on Experimental Group and Control Group

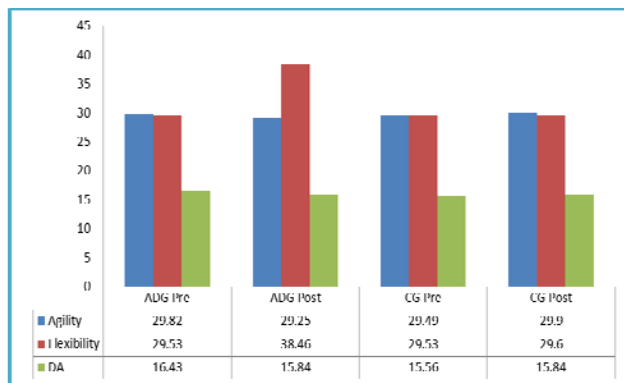
(Scores in numbers)

Group	Variables	Mean	N	Std. Deviation	Std. Error Mean	t ratio	
Experimental Group	Agility	Pre test	29.82	15	0.41	0.10	5.29*
		Post test	29.25	15	0.45		
	Flexibility	Pre test	29.53	15	5.39	1.82	4.89*
		Post test	38.46	15	4.29		
	DA	Pre test	16.43	15	0.78	0.09	6.39*
		Post test	15.84	15	0.89		
Control group	Agility	Pre test	29.49	15	0.38	0.22	1.86
		Post test	29.90	15	0.89		
	Flexibility	Pre test	29.53	15	4.29	0.11	0.56
		Post test	29.60	15	4.48		
	DA	Pre test	15.56	15	0.94	0.16	1.74
		Post test	15.84	15	0.97		

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table I reveals the computation of mean, standard deviation and ‘t’ ratio on selected motor fitness parameters namely agility, flexibility and dribbling ability experimental group. The obtained ‘t’ ratio on agility, flexibility and dribbling ability were 5.29, 4.89 and 6.39 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained ‘t’ values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and ‘t’ ratio on selected motor fitness parameters namely agility, flexibility and dribbling ability control group. The obtained ‘t’ ratio on agility, flexibility and dribbling ability were 1.86, 0.56 and 1.74 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained ‘t’ values were lesser than the table value it was found to be statistically not significant.



(Scores in numbers)

Fig I: Bar diagram showing the mean value on motor fitness parameters and dribbling ability of inter collegiate male football players on experimental and control group

3. Discussion and Findings

The present study experimented the effect of aerobic dance training on motor fitness parameters and dribbling ability of football players. The result of the study indicated that the aerobic dance training improved the motor fitness parameters such as agility and flexibility and dribbling ability. The findings of the present study had similarity with the findings of the investigations referred in this study. However, there was a significantly changes of subjects in the present study the agility, flexibility and dribbling ability was significantly improved of subject in the group may be due to the in aerobic dance. Hopkins *et al.*, (1990) [1] reported that 12 weeks of low

impact aerobic dance, the group improved significantly on all functional fitness components. Vairavasundaram *et al.*, (2014) [2] showed that significant improvement in all the selected physical variables namely agility, explosive power, muscular strength endurance and flexibility among handball players. Mathewos *et al.*, (2013) [3] evaluated that aerobic exercise has positive effect on improvement of cardiovascular endurance, muscular strength, muscular strength and flexibility. Justin *et al.*, (2009) [4] investigated that best to structure dance programs for older adults to maximize gains in physical function while ensuring participant safety and enjoyment. Chanelle *et al.*, (2009) [5] concluded that the aerobic-based physical activity programme improved aerobic endurance, muscular strength and muscular endurance, and the tone of the body.

From of result of the present study, it is speculated that the observed changes in agility, flexibility and dribbling ability may properly designed aerobic dance training which are suitable for men football players at college level.

4. Conclusions

1. It was concluded that 12 weeks twelve weeks aerobic dance significantly improved the agility, flexibility and dribbling ability of the inter collegiate male football players.
2. Aerobic dance is one among the most appropriate means to bring about the desirable changes over motor fitness variables and dribbling ability of football players. Hence, suggested that coaches and the experts deal with football players to incorporate aerobic dance as a component in their training programme.

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