



IMPACT OF AEROBIC DANCE ON SELECTED PHYSICAL COMPONENTS ON INTERCOLLEGIATE HANDBALL PLAYERS

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Abstract

The purpose of the study was to find out the impact of aerobic dance on selected physical variables namely agility, explosive power, muscular strength endurance and flexibility among inter collegiate handball players. To achieve the purpose of the study thirty handball players have been randomly selected from various affiliated colleges from Bharathidasan University Tamil nadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had experience of at least three years in handball and only those who represented their respective intercollegiate tournament were taken as subjects. A series of physical tests was carried out on each participant. These included agility, explosive power, muscular strength endurance and flexibility. Agility assessed by shuttle run, explosive power assessed by standing broad jump, muscular strength endurance assessed by sit ups and flexibility assessed by sit and reach test. The subjects were randomly assigned into two groups of fifteen each, such as experimental and control groups. The experimental group participated in the aerobic dance training for 3 alternative days in a week, one session per day and for 8 weeks each session lasted 60 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of co-variance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups. The results of the study showed that there was significant level differences exist between aerobic dance training and control group. Aerobic dance training group showed significant improvement on agility leg explosive power, muscular strength endurance and flexibility compared to control group.

Key words: Aerobic dance training, agility, explosive power, muscular strength and flexibility.

INTRODUCTION

Aerobics, literally 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. 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).

DANCE

Dance is a popular activity of people of all ages and is both a physical activity and a performing art that gives participants an opportunity for aesthetic expression through movement. Dance is used to communicate ideas and feeling and is considered a creative art form. As with all of the arts, dance should

be an integral part of the educational experience. As a form of recreation, dance provides opportunities for enjoyment, self-expression, and relaxation. Dance also can be used as a form of therapy, providing opportunities for individuals to express their thoughts and feelings. It provides a means to cope with the various stresses placed on individuals. Dance is increasingly used as a means to develop fitness. There are many forms of dance that are enjoyed by individuals-including ballet, ballroom, folk, clog, modern, square, and tap. Cultural heritage is reflected in and passed on through dance activities. Within the past four decades, aerobic dance, and its many variations, has grown in popularity. Aerobic dance provides participants with an opportunity to develop fitness and experience the fun and enjoyment of working out to music. Health, recreation, and dance are allied fields of physical education, exercise science, and sport (**Deboraha, 2010**).

PHYSICAL FITNESS

Physical fitness means to share greater responsibility without undue stress, fatigue and help in the quality of health and well being. Physical education activities and program are rendering valuable service to the main in improving their health and life cycle. Sometimes the lack of regular exercises results in chronic fatigue. Regular participation in physical exercise and its activities enhance the level of physical fitness. If an individual wants to lead a healthy and prosperous life he has to be physically fit that is the way of wellness and well being. Different people have different points of view regarding physical fitness. For a common man a good physique is a symbol of physical fitness. In fact physical fitness of a person means the capacity to do the routine work without any fatigue or exertion and after doing his work he has a power to do some more work and recovery is quicker. Physical fitness having health plus the capacity

to do one's everyday task to engage in recreational pursuits and to meet emergencies when they arise. Physical fitness varies according to the nature of work, the size, and shape of the body, age and sex of the individuals. For physical fitness one requires an efficient motor mechanism functioning. A physically fit individual possesses sufficient reserve of the energy to meet the demands of the emergencies in which he is unexpectedly of strength, energy and adaptive ability under unfavorable environments. Physical fitness is one of the main mottos of physical education programmed. Physical fitness is defined as the ability of the body to adapt and recovery from strenuous exercises. The sports performance depends largely on physical fitness i.e. speed, strength, power, agility, flexibility and coordinative abilities. The process of improvement of motor abilities is also called conditioning. Physical fitness is a matter of fundamental importance to the well being of the every individual in the field of physical education. Physical fitness components and specific training package of technical skills are very important factors for athletes. This component of training package and development of technical ability more important to the long jumper in the competition periods

Physical fitness has an important and most valuable place in modern society for its close relation to every stage of life. Physical fitness can be achieved through the coordination of all the aspects like mental, social environmental and emotional condition. When people are physically fit they look better, speak better, work better, sleep better, think more clearly and resume disease and tension more easily. Physical fitness of any human being in for must its existence physical fitness has become a national concern total fitness of an individual and social as well as physical qualities.

Methodology

To achieve the purpose of the study, thirty male handball players have been randomly selected from various affiliated colleges from Bharathidasan University, Tiruchirappalli, Tamilnadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had experience of at least three years in handball and only those who represented their respective intercollegiate tournament were taken as subjects. In the following variables are included such as agility, explosive power, muscular strength endurance and flexibility. Agility assessed by shuttle run, explosive power assessed by standing broad jump, muscular strength endurance assessed by sit ups and flexibility assessed by sit and reach

test. The subjects were randomly assigned into two groups of fifteen each, such as experimental and control groups. The experimental group participated in the aerobic dance training for 3 alternative days in a week, one session per day and for 8 weeks each session lasted 60 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of co-variance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups

The criterion variables test items and unit of measurement were presented in table I

S.N	Criterion variables	Test items	Unit of measurements
1	Agility	Shuttle run	In seconds
2	Explosive power	Standing broad jump	In centimeter
3	Muscular strength endurance	Sit ups	Count in numbers
4	Flexibility	Sit and reach	In centimeter

TABLE – II

Descriptive analysis of selected physical variables among control and experimental groups

S.N	Variables	group	Pre-test mean	SD (\pm)	Post –Test Mean	SD (\pm)	Adjusted Mean
1	Agility	CG	11.82	0.58	11.80	0.60	0.61
		ADTG	11.99	0.59	11.21	0.59	7.19
2	Leg explosive power	CG	1.50	0.13	1.49	0.20	3.50
		ADTG	1.38	0.20	2.06	0.23	49.97
3	Muscular strength endurance	CG	28.00	1.60	27.93	2.01	0.01
		ADTG	28.06	1.66	37.53	3.50	84.63
4	Flexibility	CG	25.60	3.62	25.53	2.53	0.96
		ADTG	26.86	3.43	35.80	2.83	109.50

ADG= Aerobic dance Training Group

CG= Control group

The tables-II the pre, post-test means, standard deviations and adjusted means on selected physical variables of handball players were numerical presented. The analysis of co-variance on selected variables of Aerobic dance Group and control group is presented in table – III

TABLE – III
Computation of analysis of co-variance on selected physical components variables
among intercollegiate handball players

S.No	Variables	Test	Sum of variance	Sum of squares	df	Mean square	F ratio
1	Agility	Pre-test	Between groups	0.21	1	0.21	0.61
			Within groups	9.60	28	0.34	
		Post-test	Between groups	2.58	1	2.58	7.19
			Within groups	10.06	28	0.36	
		Adjusted means	Between sets	4.06	1	4.06	66.70*
			Within sets	1.64	27	0.06	
2	Explosive power	Pre-test	Between groups	0.11	1	0.11	3.50
			Within groups	0.85	28	0.03	
		Post-test	Between groups	2.45	1	2.44	49.97
			Within groups	1.37	28	0.05	
		Adjusted means	Between sets	3.04	1	3.04	113.1*
			Within sets	0.73	27	0.03	
3	Muscular strength endurance	Pre-test	Between groups	0.03	1	0.03	0.01
			Within groups	74.93	28	2.68	
		Post-test	Between groups	2.68	1	2.68	84.63
			Within groups	228.67	28	8.17	
		Adjusted means	Between sets	684.70	1	684.70	93.69*
			Within sets	197.32	27	7.31	
4	flexibility	Pre-test	Between groups	12.03	1	12.03	0.96
			Within groups	349.33	28	12.48	
		Post-test	Between groups	790.53	1	790.53	109.50
			Within groups	202.13	28	7.22	
		Adjusted means	Between sets	667.20	1	667.20	174.37*
			Within sets	103.31	27	3.83	

*Significant at 0.05 level of confidences.

(Table value for df 1 and 28 was 4.19, Table value for df 1 and 27 was 4.21)

The obtained F-ratio of 66.70 for adjusted mean was greater than the table value 4.21 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant level difference among control and experimental groups on Agility. The above table also indicates that pre test of control and experimental groups did not

differ significantly and post test of control and experimental groups have significant difference on Agility levels.

The obtained F-ratio of 113.16 for adjusted mean was greater than the table value 4.21 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant level difference

among control and experimental groups on Explosive power. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on Explosive power levels.

The obtained F-ratio of 174.37 for adjusted mean was greater than the table value 4.21 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant level difference among control and experimental groups on muscular strength endurance. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on muscular strength endurance levels.

The obtained F-ratio of 93.69 for adjusted mean was greater than the table value 4.21 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant level difference among control and experimental groups on flexibility. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on flexibility levels.

DISCUSSION ON FINDING

The aim of the study was to assess 8 week of aerobic dance training on physical components of handball players. Related literature's done under this study reveals that according to **Bobo M et al. (1999)** examined The effect of long - term aerobic dance on agility and flexibility, related factors. **Wen et al.(2008)** examined Effects of aerobic dance with different duration on fitness in females. The above literature's mentioned that the

aerobic dance training improves agility, explosive power, muscular strength endurance and flexibility at various levels. In this current study aerobic dance training protocol indicate a positive change of improvement on experimental variables of intercollegiate handball players.

Conclusions

From the analysis of data, the following conclusions were drawn.

1. The experimental group showed significant improvement in all the selected physical variables namely agility, explosive power, muscular strength endurance and flexibility among handball players.
2. The control group did not showed any significant improvement in any selected physical variables among handball players.

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