Comparative Study on Selected Physical Fitness Components between Chhau Dancers and Football Players in West Bengal

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Abstract

Present study was conducted to investigate, whether any differences existed in the performance on selected physical fitness components between the district level footballers and Chhau dancers. For conducting this study, total sixty female subjects of 16 to 18 years were selected from different district of West Bengal, India. Among them 30 subjects were district level football players and resting 30 subjects were chhau dancers having more than 5 years of experience. Criteria measured for this study were leg explosive strength, strength endurance, flexibility, balance, and reaction time. Leg explosive strength was measured by standing broad jump, muscular strength endurance was measured by bend knee sit-up, flexibility was measured by sit and rich test, balance was measured by stork stand test, and reaction time was measured by Nelson hand reaction time test. From this study it was found that, there were significant differences between footballers and chhau dancers in leg explosive strength (t=5.53*), strength endurance (t=7.64*), balance (t=6.30*), and also in reaction time (t=2.46*). But in case of flexibility there was no significant difference between the selected groups. From this study it was also observed that footballers were better in all the selected physical fitness components than chhau dancers. With limitations, it may be concluded that playing football is a better way to improve the selected physical fitness components than practicing chhau dance.

Key Words: Explosive Strength, Strength endurance, Flexibility, Balance, Reaction Time.

Introduction

Fitness indicates the ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure-time pursuits and to meet unforeseen emergencies [1]. Low level of cardio-respiratory and muscular fitness in adulthood is related with several chronic diseases [2]. But, having a healthy and beautiful body is a dream for everyone. Exercise is a very helpful way in achieving that [3]. Acquiring adequate level of physical fitness components from early age are related to better body composition and healthier cardio-metabolic profile later in life [2]. Higher level of upper and lower body muscular strength are associated with lower risk of mortality in adult population [4]. Women's fitness is crucial for overall well-being, promoting physical health, mental resilience, and disease prevention. Nutritious foods, exercises and adequate rest give the body a better and healthier life cycle [3]. But, in most of the cases women working at home or office get caught up in their busy lives and neglect to take care of their fitness. According to World Health Organization for children and adolescents, daily practice of 60 minutes of moderate to vigorous activity (including aerobics and strengthening etc.) improve fitness, mental health and also reduce the risk of diseases. It also reduces the risk of uterus related disease in women [3]. Dance is a very good exercise to provide physical, physiological and psychological benefits. Women always play a very significant role in carrying forward the Indian dance tradition from the Vedic age. The first known female dancers were the Apsarās [5]. Dance has been increasingly used in the treatment of various diseases. Dancing improves flexibility, coordination and strength [6]. But, now a day sports field is also open for women where they can participate and practice different types of games and sports. Football is also an interesting and vigorous exercise. Women likely played football informally for centuries, but the first recorded history said that women's football match took place in **Scotland in the 1790s,** this is one of the first documented instances of a recurring women's competition [7]. So the purpose of the present study was to find out the better way which may contributes to the promotion and maintenance of physical health and fitness.

Methods and Materials

For conducting this study, total sixty female subjects were selected from different district of West Bengal, India. Their age ranged from16 to 18 years. Among them 30 subjects were district

level football players and resting 30 subjects were chhau dancers having more than 5 years of experience. Criteria measured for this study were Leg Explosive strength, Strength Endurance, Flexibility, Balance, and Reaction time. Leg Explosive Strength was measured by standing broad Jump, muscular strength endurance was measured by bend knee sit-up, flexibility was measured by sit and rich test, balance was measured by stork stand test, and reaction time was measured by Nelson hand reaction time test. [8]. Mean and standard deviation (SD) were used as descriptive statistics. Difference between two means was done to find out the significant difference on test items. The level of significance was set at 0.05 level of confidence [9].

Result and Discussion

Table-1: Mean and Standard Deviation (SD) of Personal data (Age in year, Height in centimetre and weight in kg) of selected groups.

Variables / Groups	Age (Year)		Height (cm)		Weight(kg)	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Football Players	17.77	±1.43	153.3	±5.15	39.86	±6.53
Chhau Dancers	17.90	±1.39	148.4	±5.48	42.92	±5.27

Table-1 represents the means and standard deviations of personal data of the selected groups. From table-1, it was observed that the mean age of the subjects were 17.77±1.43 year and 17.90±1.39 years for Football players and Chhau dancers respectively. The mean height of the football players was 153.3±5.15cm and 148.4±5.48cm was the mean height of the Chhau dancers. From table-1 it was also found that the mean and SD of weight of the football players and Chhau dancers were 39.86±6.53 kg and 42.92±5.27 kg respectively.

Table-2: Mean, Standard Deviation (SD) and "t" values of selected variables.

Variables / Groups	Leg Explosive strength (cm)		Strength Endurance (No.)		Flexibility (cm)		Balance (sc)		Reaction time (sc)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Footballer	169.6	±17.96	26.30	±6.12	14.18	±5.191	17.26	±14.26	1.487	±0.1859
Chhau Dancer	144.3	±17.37	16.57	±3.360	13.29	±3.724	10.22	±6.521	1.763	±0.1514
"t"	**t=5.53***		**t=7.64***		**t=0.76 ns**		**t=6.30***		**t=2.46***	

*=Significance at 0.05 level of confidence, Degree of Freedom=58, ns= not significant,

Fig-1: Graphical representation of mean and SD of leg explosive strength of slected groups

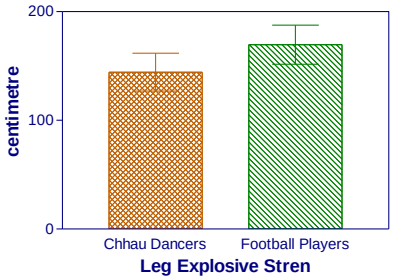


Fig-2: Graphical representation of mean and SD of Muscular strength endurance of slected groups

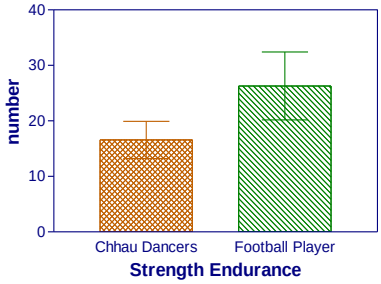


Fig-3: Graphical representation of mean and SD of flexibilityof slected groups

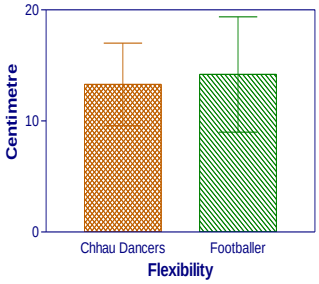


Fig-4: Graphical representation of mean and SD of balance of slected groups

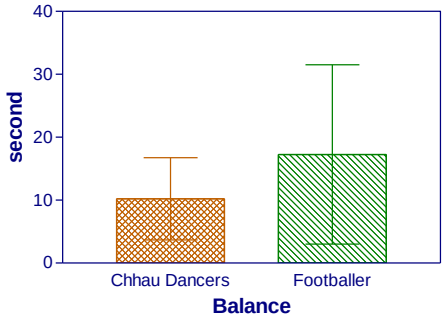
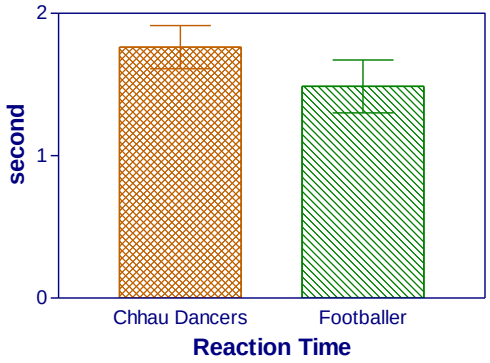


Fig-5: Graphical representation of mean and SD of reaction time of slected groups



DISCUSSION OF FINDINGS

Table-2 represents the mean and standard deviation of selected fitness variables of football players and Chhau dancers. From table-2 it was observed that there were significant difference in leg explosive strength (t=5.53*). The mean and SD of Leg Explosive Strength of Football Players, was 169.6±17.96 cm and for Chhau Dancers 144.3±17.37 cm. The mean and standard deviation of muscular strength endurance of footballers and chhau dancers were 26.30 ± 6.12 and 16.57± 3.36 respectively. The “t” value of muscular strength endurance was t = 7.64*.

The mean and standard deviation of flexibility of football players was 14.18± 5.191 cm and for Chhau Dancers it was 13.29 ± 3.724 cm. The difference between two means of flexibility was 0.76. From table-2 it was also found that there were significant difference in balance (t=6.30*).

The mean and SD of balance of Football Players, was 17.26±14.26seconds and for Chhau Dancers 10.22±6.521 seconds.

Table-2 showed the mean and standard deviation of Reaction time of the selected Chhau Dancers and Football Players. The mean and standard deviation of reaction time of Football Players was 1.487±0.1859 seconds and for Chhau dancers it was 1.763±0.1514 seconds and. The “t” - value of reaction time was 2.46*.

This study revealed that Footballers were significantly better than Chou Dancers in explosive leg strength, muscular strength, balance and reaction time. There was no significant difference between Footballers and Chhau Dancers in flexibility.

The key qualities required for playing football effectively are technical quality, physical quality, and also the mental quality. Among physical qualities, footballers are often better in explosive strength, muscular endurance and reaction time, which are critical for the demands of football such as sprinting, kicking, and tackling. These are may be the reason for which football training helps to improve all the selected physical qualities in a better way.

CONCLUSION

From this study it was observed that footballers were significantly better in most of the selected physical fitness components than chhau dancers. With limitations of the study, it may be concluded that instead of practicing chhau dance, football playing and training program of football is a better way to improve all the selected physical qualities.

Acknowledgement

We want to express our heartiest thanks to the State institute of Physical Education for Women, Hastings House for providing such opportunity of conducting this study.

Funding Source/Trial Registration

There was no funding from any organization.

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