

A Comparative Study on Motor Ability between Bharatnatyam Dancers and Gymnasts of West Bengal

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Abstract:

Objective: *The objective of the study was to compare the motor ability between Bharatnatyam dancers and professional gymnasts of west Bengal.*

Methodology: *For the purpose of the study Thirty (N=30) subjects were randomly chosen of which fifteen (n=15) were Bharatnatyam dancers and rest fifteen (n=15) were professional gymnasts. The subjects represented Bharatnatyam dancers group were collected from Kalamandir Nritya Kendra and the subjects represented professional gymnast group in the present study were collected from Dolphin Anushilan Kendra. Both the institutes are situated at Burdwan district of West Bengal. The age of the subjects ranged between 10 to 15 years. The six different motor ability components viz. Cardiovascular Endurance, Agility, Explosive Leg Strength, Speed, Muscular Strength, and Muscular Endurance were considered as variables for the present study. The data were collected by using AAHPERD Youth Physical Fitness Test Battery.*

Statistics: *Mean, standard deviation (SD) and independent t- test were the statistics used in this study for data interpretation. Level of significant difference between two groups was set at $p < 0.05$. For statistical calculations Excel Spread Sheet of windows version 7 was used.*

Results: *Result of present study revealed that among various motor ability components significant difference were observed in almost all the components except agility between the Bharatnatyam dancers and professional gymnasts.*

Conclusion: *It can be concluded from the results of the study that in cardiovascular endurance and speed the Bharatnatyam dancers are better than the professional gymnasts. On the other hand in Explosive Leg Strength, Muscular Strength, and Muscular Endurance the professional gymnasts are better in ability than the Bharatnatyam dancers.*

Keywords: *Cardiovascular Endurance, Agility, Explosive Leg Strength, Speed, Muscular Strength, Muscular Endurance and AAHPERD Youth Physical Fitness Test Battery.*

1. INTRODUCTION

Bharatnatyam dance is a popular activity of people of all ages. It is a physical activity as well as a performing art that provides participants with an opportunity for athletic expression through movement. There are various types of dances that are enjoyed by individuals- including ballet, ball room, folk dance, Modern and Classical dance. Very recently Aerobic dance have been introduced which provides participants with an opportunity to develop fitness and experience the fun and enjoyment.

Gymnastics is the special type of motor ability of an individual to ensure the flexibility and easy movement of the body .The important aspect of gymnastics Is to promote body balance which is very much important in physical education activity .There are different types of gymnastic activity .there are different types of gymnastic activity such as floor exercise , horizontal bar , parallel bar exercise ensures all sorts of physical fitness and helps an individual to lead his or her day –to-day life with full of energy.

Bharatnatyam dance and gymnastics both are important physical education activities which contribute to the growth and development of the human being. So the researcher has been interested to find out a comparative study on Motor ability between a Bharatnatyam dancer and gymnasts.

2. METHODS & MATERIALS

For the purpose of the study Thirty (N=30) subjects were randomly chosen of which fifteen (n=15) were Bharatnatyam dancers and rest fifteen (n=15) were professional gymnasts. The subjects represented Bharatnatyam dancers group were collected from Kalamandir Nritya Kendra and the subjects represented professional gymnast group in the present study were collected from Dolphin Anushilan Kendra. Both the institutes are situated at Burdwan district of West Bengal. The age of the subjects ranged between 10 to 15 years. The six different motor ability components viz. Cardiovascular Endurance, Agility, Explosive Leg Strength, Speed, Muscular Strength, and Muscular Endurance were considered as variables for the present study. The data were collected by using AAHPERD Youth Physical Fitness Test Battery. Ethical consents were taken from the respective institutes before conducting the study. The data were collected in two consecutive days for all the subjects as per the tests guidelines. Mean, standard deviation (SD) and independent t- test were the statistics used in this study for data interpretation. Level of significant difference between two groups was set at $p < 0.05$. For statistical calculations Excel Spread Sheet of windows version 7 was used.

3. RESULTS AND DISCUSSION

In **Table – 1**, the mean and standard deviation of age, height, and weight of the subjects for different groups have been presented. In Fig-1 the descriptive statistics of different group of subjects have been presented. Thus Table-1 shows that the number of Gymnasts was 15 and the mean age of the subjects was 12.43 years with a standard deviation ± 1.97 . The mean height was 132.59 cm. with a standard deviation of ± 9.65 . The mean weight for the same age group was 41.86 kg with a standard deviation and range of ± 6.24 .

Table1. Mean and standard deviation of age, height, and weight of the subjects

Sl. No.	Name of the Group	No. Of Subjects	Age (years)	Height (cm.)	Weight (Kg.)
			Mean \pm S.D	Mean \pm S.D	Mean \pm S.D
1	Gymnasts	15	12.43 \pm 1.97	132.59 \pm 9.65	41.86 \pm 6.24
2	Bharatnatyam Dancers	15	12.59 \pm 3.46	135.45 \pm 11.43	45.32 \pm 6.72
Total no. of Subjects: (N) = 30					

For Bharatnatyam Group the number of subjects was 30 and the mean age of the subjects was 12.59 years with a standard deviation of ± 3.46 . The mean height was 135.45 cm. with a standard deviation of ± 11.43 . The mean weight for the same age group was 45.32 kg with a standard deviation of ± 6.72 .

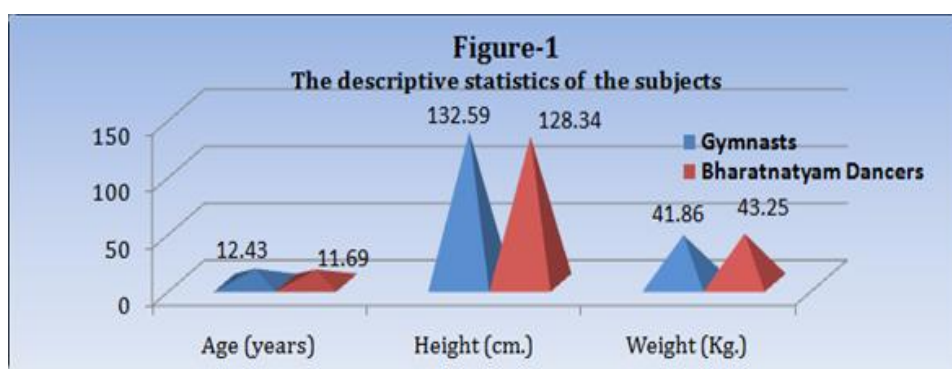


Table2. Mean, SD, mean diff, Standard error and t-value of different variables of Gymnasts and Bharatnatyam Dancers

Name of the Variable	Measured By	Gymnasts	Bharatnatyam Dancers	Mean Diff.	S.E	t- value
		(Mean \pm SD)	(Mean \pm SD)			
Speed (Sec.)	50 m. dash	6.10 \pm 0.78	10.44 \pm 1.48	4.34	0.43	10.07*
Agility (Sec.)	Shuttle run Test	12.55 \pm 0.84	12.26 \pm 0.52	0.29	0.26	1.14
Explosive Leg Strength (m.)	Standing broadJump	2.87 \pm 0.48	2.08 \pm 0.42	0.79	0.16	4.80*
Muscular Endurance (no.)	Bent knee sit up	38.20 \pm 6.37	28.60 \pm 4.93	9.60	2.08	4.62*
Muscular Strength (min.)	Flexed arm hang	1.83 \pm 0.76	0.87 \pm 0.83	0.96	0.29	3.32*
Cardiovascular Endurance (Min)	600 m Run-Walk	3.86 \pm 0.58	6.06 \pm 0.71	2.21	0.24	9.28*

Table value of 't' at 0.05 level of confidence for $df (28) = 2.05$, * Sign indicates Significant difference.

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From **Table-2** it was found that the mean \pm SD of **Speed** for the Gymnasts were 6.10 ± 0.78 sec. and for the Bharatnatyam Dancers were 10.44 ± 1.48 sec. respective mean difference 4.34, standard error 0.43, t-value 10.07.

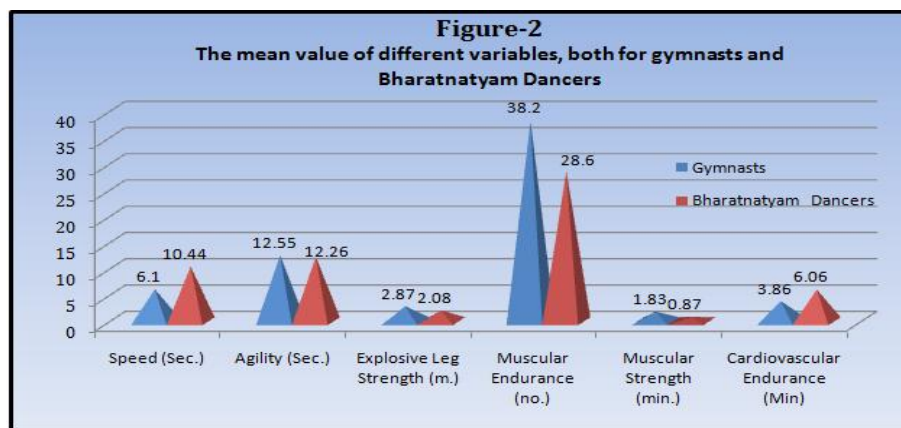
The mean \pm SD of **Agility** for the Gymnasts were 12.55 ± 0.84 sec. and for the Bharatnatyam Dancers were 12.26 ± 0.52 sec. respective mean difference 0.29, standard error 0.26, t-value 1.14.

The mean \pm SD of **Explosive Leg Strength** for the Gymnasts were 2.87 ± 0.48 m. and for the Bharatnatyam Dancers were 2.08 ± 0.42 m. respective mean difference 0.79, standard error 0.16, t-value **4.80**.

The mean \pm SD of **Muscular Endurance** for the Gymnasts were 38.20 ± 6.37 no. and for the Bharatnatyam Dancers were 28.60 ± 4.93 no. respective mean difference 9.60, standard error 2.08, t-value **4.62**.

The mean \pm SD of **Muscular Strength** for the Gymnasts were 1.83 ± 0.76 min. and for the Bharatnatyam Dancers were 0.87 ± 0.83 min. respective mean difference 0.96, standard error 0.29, t-value **3.32**.

The mean \pm SD of **Cardiovascular Endurance** for the Gymnasts were 3.86 ± 0.58 min. and for the Bharatnatyam Dancers were 6.06 ± 0.71 min. respective mean difference 2.21, standard error 0.24, t-value **9.28**.



From the **Table-2** it was observed that in almost all the variables statistically significant difference existed between the gymnasts and Bharatnatyam Dancers except Agility. It was also evident from the table that in all the motor ability components the gymnasts were significantly better than the Bharatnatyam Dancers. In Fig-2 the mean value of different variables, both for gymnasts and Bharatnatyam Dancers, have been shown.

These results may be explained by the fact that the Gymnastic event involves exercises on different apparatus which consists of running, jumping, acrobatic action in the air and crash landing on the mat having high degree of difficulty that required high level of fitness and consequently practices hard by using various modern equipments to develop their physical fitness and motor ability than the Bharatnatyam dancers. On the other hand the Bharatnatyam dancers practice their dancing movements from artistic standpoints to rectify their movements that also required high level of physical fitness and balance ability but the movement pattern do not demand high level of motor ability like the gymnasts. Probably for that reason the Bharatnatyam dancer's concentrates to develop their basic physical fitness & balance instead of developing motor ability. Thus significantly a better result of the gymnasts in motor ability was found than the Bharatnatyam dancers.

4. CONCLUSION

On the basis of the result it can be concluded that the professional gymnasts have better motor ability than the Bharatnatyam dancers.

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