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RELATIONSHIP OF SELECTED PHYSICAL VARIABLES TO THE PERFORMANCE IN FLOOR EXERCISE

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ABSTRACT

Early participation in gymnastics is to develops the most fundamental movement skills of physical, mental, social, emotional and motor abilities along with the performance skills that to carry over into the all aspects of life. Aim of the study is to find out the relationship of physical variables (arm strength, leg strength, agility and flexibility) with the performance in floor exercise. Subjects: 20 male gymnasts were randomly selected from Tripura and they all are treated as a subject of the study. Test: For assessing the selected physical variables i.e. arm strength, leg strength, agility, flexibility the following tests were employed: for arm strength - the Rogers formula was employed in which height was measured in inches, weight in kilograms, push-ups and pull-ups in numbers, leg strength in kilograms, shuttle run for agility, flexibility test for spine, shoulder and wrist. The gymnastics performance in floor exercise was evaluated by panel of experts on the basis of their skills, techniques, acquisition and perfection over the skills. Statistic: Zero order correlation was used to see the relationship between selected physical variables and performance in floor exercise and level of significant was set at 0.05. Results: The result of the study reveals that all the physical variables were found significant except spine flexibility. Conclusion: The elements in floor exercise are highly technical and mainly concerned with techniques, aesthetic movement, multi-rotational and multidimensional skills where relative strength in combination of flexibility is required to acquisition the elements.

Keywords: Strength, Agility, Flexibility and Floor exercise

INTRODUCTION

Gymnastics requires a conditioning programme, which develops flexibility, muscular strength, power and agility all of which must be integrated to achieve the optimum skill performance from each player. The sport provides an ample opportunity for the development of strength, speed, endurance, agility, neuro-muscular skill and coordination by various actions involved in it. Such actions are running, jumping, bending, stretching, holding, rotating, landing and other movements, which called balance and carryout values, and thus it meets all the requirements of an excellent form of physical activity. Strength, quickness combined with agility, coordination and main components of specific fitness required in gymnastics. The development of these components should be related to the specific conditions of game as they play an important role in achieving significant results in various techniques.

The essential characteristics of gymnastics and reflects the belief that gymnastics is chiefly concerned with bodily skill. It is classified into units of work. All units are action focussed i.e. they focus on what the body can do and other qualitative and spatial aspects are used as a

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means of developing the action focus. Gymnasts should be capable of demonstrating skilled and harmonious body action, showing discrimination in their selection of work to practise and perform. Earlier stated that gymnastics is a bodily skill and to be proficient in using skilled body movement. Gymnasts may need to demonstrate and understand of a movement concept in their performance and so the task will be of a different order e.g., devise a sequence of turns about the three axes of the body. This study was undertaken to find the relationship of arm strength, leg strength, agility and flexibility with the performance of gymnasts in floor exercise.

METHODOLOGY

For the purpose of the study twenty (20) male gymnasts were randomly selected from Tripura and they all are state level gymnast. The selected subjects age range between 14-17 years.

Keeping the demand and requirement of the sports event in mind, the research scholar had been selected the following physical variables which are treated as independent variables:

- Arm strength
- Leg strength
- Agility
- Flexibility

Further, to find out the relationship of these selected variables with the performance in floor exercise were considered as dependent variable.

For determining the significant relationships of arm strength, leg strength, agility and flexibility with the performance of gymnasts in floor exercise, the Pearson's Product Moment Correlation was used for the analysis of data and the level of significance was set at 0.05.

ANALYSIS OF DATA AND RESULTS OF THE STUDY

The test-retest method was employed to determine reliability of performance of the subjects. The performance of the subjects in arm strength, leg strength, agility and flexibility were recorded on two days with a gap of one day in between. Pearson's 'r' method was used to find out the coefficient of correlation, and data are presented in table 1.

TABLE- 1
COEFFICIENT OF RELIABILITY OF TEST RETESTS SCORES

Test Items	'r'
Arm strength	0.941*
Leg strength	0.923*
Agility	0.948*
Spine flexibility	0.827*
Shoulder -wrist flexibility	0.876*

*Significant at 0.05 level of significance

The reliability of the test retest scores of arm strength, leg strength, agility, spine flexibility and shoulder-wrist flexibility are obtained respectively 0.941*, 0.923*, 0.948*, 0.827*, 0.876* which was significant at 0.05 level of significant with (2, 18) degree of freedom is 0.444.

To find out the relationship between independent variables i.e. arm strength, leg strength, agility and flexibility with the dependent variable of gymnast's performance was obtained by "zero-order correlation".

TABLE-2
COEFFICIENT OF CORRELATION OF INDEPENDENT VARIABLES AND DEPENDENT VARIABLE

Independent Variables	'r'
Arm strength	0.534*
Leg strength	0.562*
Agility	0.493*
Spine flexibility	-0.114
Shoulder-wrist flexibility	0.545*

*Significant, r.05 (2, 18) = 0.444

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The above table reveals that arm strength, leg strength, agility and shoulder-wrist flexibility were found significant with the performance in floor exercise. The significant coefficient of correlation values are 0.534*, 0.562*, 0.493* and 0.545* respectively. Whereas, spine flexibility did not found significant at 0.05 level of significant with (2, 18) degree of freedom.

CONCLUSION

Based on the results, it was concluded that arm strength, leg strength, agility and shoulder-wrist flexibility are significantly influenced the performance in floor exercise. Infect, elements in floor exercise are highly technical and mainly concerned with techniques, aesthetic movement, multi-rotational and multidimensional skills where relative strength in combination of flexibility is required to acquisition the skills. As earlier mentioned that the gymnastics is bodily skills sports, the most of the elements in floor exercise required own body strength and body actions.

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