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Relationship of Selected Kinematic Variables with the Performance of Male Basketball Players in Free Throw Shots

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Abstract – The purpose of this study is to investigate the relationship of selected kinematics variables with the performance of male basketball players in free throw shot. The selected kinematic variables were Angle at wrist joint, Angle at shoulder joints, Angle at elbow joints, Angle at hip joints, Angle at knee joints, Angle at ankle joints. It was hypothesized that there would be a significant relationship of the selected kinematics variables with the performance of subjects in Free Throw Shots. Five male basketball players of Lakshmibai National University of Physical Education, Gwalior, M.P. were selected to serve as the subjects of study. The data was collected by the help of sequential photography, anthropometrics measurement and the across of the subjects in free throw shot. The data was analyzed by using Pearson's Product Moment Correlation between selected kinematics variables with the performance of free throw shot. None of the selected variables exhibited significance relationship with the performance of free throw shot. Hence, hypothesis decided at the beginning the study is rejected.

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Basketball that is a physical activity is considered as the fastest game of the world after ice hockey. In the fall of 1891, Luther Gallic, Head, Physical Education Department, Y.M.C.A., Training School, Springfield Massachusetts, assigned a task to Dr. James Naismith, physical training instructors to invent an indoor game for winter, arouse competitive instinct of players as well as provide them with all around exercise and have minimum chances of injuries, Dr. James Naismith knows as the 'Father of Basketball' invented the game and the first public demonstration of basketball was held on 11th of March 1891.

Basketball holds an important place in the college level programme of physical education for women. The game offers opportunities for the development of strength endurance, speed, agility and neuromuscular skills and coordination's of all parts of the body. It develops teamwork and also enables students to develop friendship through playing together.

Therefore, to achieve the aims and objectives of physical education in the college and for the enjoyment and benefit after college life, basketball has a valuable place in Physical Education programme for men.

The purpose of this study is to investigate the relationship of selected kinematics variables with the performance of male basketball players in free throw shot. The selected kinematic variables were: -

a. Angular Kinematics Variables: -

i) Angle at wrist joint.

ii) Angle at shoulder joints.

iii) Angle at elbow joints.

iv) Angle at hip joints.

v) Angle at knee joints.

vi) Angle at ankle joints.

It was hypothesized that there would be a significant relationship of the selected kinematics variables with the performance of subjects in Free Throw Shots.

COLLECTION OF DATA

Five male basketball players of Lakshmibai National University of Physical Education, Gwalior, M.P. were selected to serve as the subjects of study. The age ranged from eighteen to twenty two years. All the subjects were right handed shooters. The data was collected by the help of sequential photography, anthropometrics measurement and the across of the subjects in free throw shot. Subjects were familiarized with the testing equipments and procedures by the researcher. The scores of the subjects in free throw shot were used as the criterion variable in this study.

PROCEDURES FOR EVALUATION OF FREE THROW SHOT

To evaluate the performance of free throw shot all the subjects were assembled on the Basketball Cage Court of Lakshmibai National University of Physical Education, Gwalior. Before calculating the data, subjects were briefly explained about the importance of the study and regarding evaluation criteria i.e. two points will be awarded for each successful free throw, one point will be given if ball touches the ring and no point will be given if ball touches the board or goes away. Ten trials were given for each subject before administration of free throw technique of and Twenty minutes time was also given for the warming up with or without the ball before actual administration of free the throw.

RELIABILITY OF DATA

To obtain reliable measurements, the instruments, which were used for the purpose of the present study, namely, the video camera, geometric instruments were all standard instrument available in the Research Laboratory of Lakshmibai National University of Physical Education, Gwalior, and their reliability was ensured by the manufactures. The Camera used in this study was a standard Sony Handicam HDR-CX150E/. All the measurement pertaining to the kinematics variables were taken by the research scholar under the guidance of the experts. The videography was taken by a professional photographer of the University, Mr. Tarun Tomar. Hence the data collection for the present study was considered reliable.

STATISTICAL PROCEDURE

The data was analyzed by using Pearson's Product Moment Correlation between selected kinematics variables with the performance of free throw shot. The level of significant chosen to test the hypothesis was .05.

FINDINGS

Table - 1

RELATIONSHIP OF SELECTED VARIABLES AND THE PERFORMANCE IN FREE THROW SHOT

S. No.	Variable	Coefficient of Correlation	
		Stance	Release
1.	Wrist Joint	–.55	– .76
2.	Elbow Joint	– .39	– .28
3.	Shoulder Joint	– .58	– .71
4.	Hip Joint	.50	.23
5.	Knee Joint	–.69	– .76
6.	Ankle Joint	– .20	– .78

The Table 1 reveals that the relationship between various joints angle to the performance of free throw shot at the position of stance as well as at the position of release. To provide statistical relationship the value of co-efficient of correlation should be 0.88 at 3 degree of freedom and .05 level of confidence. In all the cases they obtained value are less than the required value.

RESULTS

1. The angle of selected joints at the position of stance does not have significant relationship with the performance of free throw shot.

2. The angle of selected joints at the position of release does not have significant relationship with the performance of free throw shot.

3. The performance of free throw shot depends upon some other factors like velocity and angle of release and backspin.

DISCUSSION OF HYPOTHESIS

As stated in the hypothesis that there will be significant relationship between selected variables with the performance of free throw shot. Since, none of the selected variables exhibited significance relationship with the performance of free throw shot. Hence, hypothesis decided at the beginning the study is rejected.

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