ORIGINAL RESEARCH PAPER

Sport Science

KEY WORDS:

RELATIONSHIP OF SELECTED BIO-MECHANICAL VARIABLES WITH THE PERFORMANCE OF FEMALE BASKETBALL PLAYERS IN LAY- UP SHOT.

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INTRODUCTION

In the modern scientific age, athletes are being trained by highly sophisticated means for better achievement in their concerned sport and they are being exposed to exercises and training methods which have proved beneficial for achieving higher standards. In the recent years greater stress has been laid on quality rather than quantity of training. The coaches and teachers of physical education want their athletes to extract maximum achievement from their training procedures without causing too much strain on them.

Biomechanics includes the study of all living things, plants, animal; animal biomechanics includes only animals as subjects of study; human biomechanics includes only human's invoved in exercise and sports. We might define exercise and sports biomechanics and the study of forces and there effects on humans in exercise and sports.

The role that sports biomechanics can play is becoming more widely understood in sports community and the demand for service increasing, researchers in sports biomechanics will have to consider carefully how much time they can devote to the provision of scientific services without impairing their performance as scholar researchers. To avoid the problems inherent in this situation, it may be necessary to develop programmes of study for the training of techniques in sports biomechanics, technicians who can provide the kind of services sought by sporting bodies.

Recently videotapes have begun to replace conventional motion pictures for teaching and coaching purposes. Since videotape is erasable, reusable and does not require any developing. It is more economical than film. The relatively inexpensive portable recorders are simple to operate and permit immediate play back

Siliconcoach Pro 07 is siliconcoach's premier software and the result of 15 years working with our clients around the globe. Siliconcoach Pro is designed for analysing movement and providing feedback by combining the processes of capture, watch and review, and analyse. Visual feedback greatly enhances understanding rather than just verbally describing movements you can visually show them.

In basketball shooting is one of the primary skills of the game and requires a great deal of practice assisted by good models, scientifically based. Since players were accepted to shoot often in order to score. They developed a variety of shots, which includes the hook shot, the jump shot, the set shots and the lay-up shot

OBJECTIVE-:

The purpose of this study was to measured the relationship of selected bio-mechanical variable to the performance in lay-up shot.

METHODOLOGY

The study was delimited to female basketball players of C.S.J.M. University, Kanpur. The study was further delimited to the 8 subject belonging to the age group 17 to 23 years. The subjects were only right handed shooters.

The scores of the subjects in Lay-up shot were used as the criterion variable in the study. The performances of the subjects were assessed by three judges however elements related to the accuracy of shooting were also added. Used in three-point scale. Three point awarded in correct action and basket scored. Two points awarded in correct action but not scored. One point awarded in touches the ring or board.

Silicon coach pro7 software was used for biomechanical analysis of Lay-up shot in basketball. A Casio Exilim F-1 High Speed Camera, which was positioned at 7.90m from the subject at an height of 1.50m. from the subject on an extension of free throw line. Camera was also set for capturing 300 fps. The subjects were made to take three Shots only. The angular kinematical variables of the body were calculated at moment execution.

The videos as obtained by the use of digital videography were analyzed (the best trial) by siliconcoach pro 7 software. Only one selected frame was analyzed. Selected variables were as under. Were represented by the angles at selected joints as Ankle joint, Knee joint, Hip joint, Shoulder joint, Elbow joint, Wrist joint, body inclination.

The data was analyzed by use of person's product moment correlation. The level of significance chosen to test the hypothesis was 0.05.

$$rxy = \frac{N\Sigma x_i y_i - (\Sigma x_i)(\Sigma y_i)}{\sqrt{(N\Sigma x_i^2 - (\Sigma x_i)^2 (N\Sigma y_i^2 - (\Sigma y_i)^2)}}$$

RESULTS

Table -I Relationship Of Selected Angular Bio-mechanical Variables At Movement Release With The Performance Of Subjects In Lay- Up Shot (N=8)

S.No.	Variables	Coefficient of Correlation (r)
1.	Ankle Joint (Right)	-0.1176
2.	Knee Joint (Right)	0.193
3.	Hip Joint (Right)	0.550
4	Shoulder Joint (Right)	0.709*
5	Elbow Joint (Right)	0.698
6	Wrist Joint (Right)	0.076
7	Body Inclination	-0.953

* Significant at 0.05 level

As shown in table -I that the value of coefficient of correlation. In case of Ankle joint (right), Knee joint (right), Elbow joint (right) Hip joint, and Wrist joint (right) showed insignificant, but Elbow joint are very closed to the significant and incase of Shoulder joint (right) showed significant relationship with the performance of coefficient of correlation for 6 degree of freedom is 0.707 and the obtained value of coefficient of correlation of selected variables less then the required value.

DISCUSSIONS

In case of Ankle joint (right), Knee joint (right), Elbow joint

(right) Wrist joint (right) and Hip joint showed insignificant, but Elbow joint are very closed to the significant and incase of Shoulder joint(right) showed significant relationship with the performance of subjects in Lay- up shot. Since the researcher has calculated the relationship individually.

This may be attributed to the fact that the angles at different joints mentioned in this study such as Knee joint, Ankle joint, Hip joint, Shoulder joint, Elbow joint, Wrist joint. Change from one individual to another according to his Anthropometric measurement. i.e. his height, leg length, arm length.

The performance of lay- up shot depends upon the velocity of ball and height of release. Take off has also play important role in the performance of lay- up shot and the releasing of ball determine the accuracy for converting into basket.

CONCLUSIONS

1. In case of Ankle joint (right), Knee joint(right), Elbow joint (right), Wrist joint (right) and Hip joint showed insignificant and incase of Shoulder joint(right) showed significant relationship with the performance of subjects in lay- up shot.
2. In case of body inclination does not have significant relationship with the performance of basketball players in lay- up shot.

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